

*Middle West Mechanical*  
**A M E R I C A N**

# **RAILROAD JOURNAL.**

**STEAM NAVIGATION, COMMERCE, MINING, MANUFACTURES.**

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**HENRY V. POOR, *Editor.***

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**ASSISTANT EDITORS:**

JAMES T. HODGE, *For Mining and Metallurgy.*

CHARLES T. JAMES, *For Manufactures and the Mechanic Arts.*

M. BUTT HEWSON, *For Civil Engineering.*

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**SATURDAY, FEBRUARY 23, 1850.**

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**JOHN H. SCHULTZ & CO.**

**Room 12, Third Floor,**

**No. 136 Nassau Street.**

SONGS R. SPRINGS  
A M E R I C A N  
METALLIC

# RAILROAD JOURNAL.

STEAM NAVIGATION, COMMERCE, MINING, MANUFACTURES.

HENRY T. POOR, Editor.

ASSOCIATE EDITORS:  
JAMES T. HOGAN, JR., Boston, Mass.  
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NEW YORK:

JOHN H. SEINFELD & CO.

Room 22, 100 Nassau Street.

No. 136 Nassau Street.



**IRON BRIDGES, BRIDGE & ROOF BOLTS,**  
etc. STARKS & PRUYN, of Albany, New York, having at great expense established a manufactory with every facility of Machinery for Manufacturing Iron Bridges, Bridge and Roof Bolts, together with all kinds of the larger sizes of Screw Bolts, Iron Railings, Steam Boilers, and every description of Wrought Iron Work, are prepared to furnish to order, on the shortest notice, any of the above branches, of the very best of American Refined Iron, and at the lowest rates.

During the past year, S. & P. have furnished several Iron Bridges for the Erie Canal, Albany Basin, etc.—and a large amount of Railroad Bridge Bolts, all of which have given the most perfect satisfaction.

They are permitted to refer to the following gentlemen:

Charles Cook, Nelson J. Beach, Jacob Hinds, Willard Smith, Esq., Messrs. Stone & Harris, Mr. Wm. Howe, Mr. S. Whipple,	Canal Commissioners of the State of New York. Engineer of the Bridges for the Albany Basin. Railroad Bridge Builders, Springfield, Mass. Engineer & Bridge Builder, Utica, N. Y.
--	--

January 1, 1849.

**TO RAILROAD COMPANIES AND BUILDERS OF MARINE AND LOCOMOTIVE ENGINES AND BOILERS.**

**PASCAL IRON WORKS.**

**WELDED WROUGHT IRON TUBES**

From 4 inches to 4 in calibre and 2 to 12 feet long, capable of sustaining pressure from 400 to 2500 lbs. per square inch, with Stop Cocks, T. L., and other fixtures to suit, fitting together, with screw joints, suitable for STEAM, WATER, GAS, and for LOCOMOTIVE and other STEAM BOILER FLUES.



Manufactured and for sale by  
**MORRIS, TASKER & MORRIS.**  
Warehouse S. E. Corner of Third & Walnut Streets,  
**PHILADELPHIA.**

**To Railroad Companies, etc.**



The undersigned has at last succeeded in constructing and securing by letters patent, a Spring Pad-lock which is secure, and cannot be knocked open with a stick, like other spring locks, and therefore particularly useful for locking Cars, and Switches, etc.

Companies that are in want of a good Pad-lock, can have open samples sent them that they may examine and judge for themselves, by sending their address to

C. LIEBRICH,  
46 South 8th St., Philadelphia.  
6m\*

**Mattewan Machine Works.**

THE Mattewan Company have added to their Machine Works an extensive LOCOMOTIVE ENGINE department, and are prepared to execute orders for Locomotive Engines of every size and pattern—also Tenders, Wheels, Axles, and other railroad machinery, to which they ask the attention of those who wish such articles, before they purchase elsewhere.

**STATIONARY ENGINES, BOILERS, ETC.,**  
Of any required size or pattern, arranged for driving Cotton, Woollen, or other Mills, can be had on favorable terms, and at short notice.

**COTTON AND WOOLLEN MACHINERY,**  
Of every description, embodying all the modern improvements, second in quality to none in this or any other country, made to order.

**MILL GEARING,**

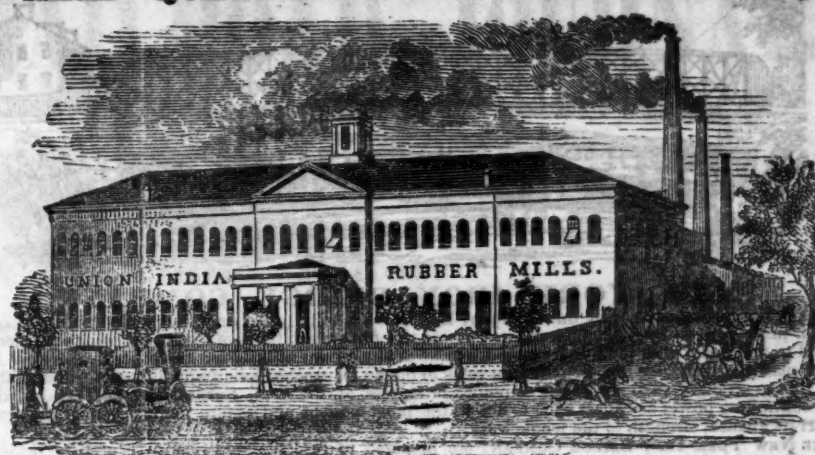
Of every description, may be had at short notice, as this company has probably the most extensive assortment of patterns in this line, in any section of the country, and are constantly adding to them.

**TOOLS.**

Turning Lathes, Slabbing, Planing, Cutting and Drilling Machines, of the most approved patterns, together with all other tools required in machine shops, may be had at the Mattewan Company's Shops, Fishkill Landing, or at 66 Beaver street, New York.

WM. B. LEONARD, Agent.

**HEAD QUARTERS FOR RUBBER GOODS.**



**The Union India Rubber Company,**

MANUFACTURERS AND DEALERS IN EVERY VARIETY OF

**GOODYEAR'S PATENT METALLIC RUBBER FABRICS,**

Which they offer on the most liberal terms at their Warehouse.

**NO. 19 NASSAU STREET, NEW YORK.**

Articles which this Company has the exclusive right to make comprise in part

Beds, Pillows, Cushions, Caps, Tents, Bottles, Tubs, Caps, Pants,	Overcoats, Leggins, Syringes, Canteens, Buoys, Maps, Sheet Gum, Tarpaulins, Life Jackets,	Life Preservers, Boat Floats, Souwesters, Gun Cases, Portable Boats, Horse Fenders, Water Tanks, Army Goods, Navy Goods,	Mail Bags, Breast Pumps, Saddle Bags, Clothing of all kinds, Carriage Cloth, assor. Hospital Sheetting, Mattress Covers, Bathing Caps, Baptismal Pants,	Camp Blankets, Travelling Bags, Wading Boots, Horse Covers, Piano Forte Covers, Railroad Gum, Hose, all kinds, Shower Baths, Chest Expanders.
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Together with all new applications of the Patent Rubber, which with Boots and Shoes, Packing, Machine Belting, Suspenders, Gloves and Mittens, Tobacco Wallets, Balls, Baby Jumpers, Elastic Bands, etc., etc., will be sold to the Trade at Factory prices.

\*. All orders for special articles to be manufactured, should be accompanied with full descriptions and drawings.

October 20, 1849.

**ETNA**



THIS superior article for igniting the charge in wet or dry blasting, made with DUPONT'S best powder, is kept for sale at the office and depot of

**REYNOLDS & BROTHER,**

Sole Manufacturers,  
No. 85 Liberty St.  
NEW YORK.

And in the principal cities and towns in the U. States.  
The Premium of the AMERICAN INSTITUTE was awarded to the Etna Safety Fuse at the late Fair held in this city.  
November 3, 1849.

**RAILROAD**

**India-rubber Springs.**

If any Railroad Company or other party desires it, the NEW ENGLAND CAR COMPANY will furnish India-rubber Car Springs made in the form of washers, with metallic plates interposed between the layers, or in any other form in which they can be made; in all cases guaranteeing the right to use the same against any and all other pretended rights or claims whatsoever.

F. M. Ray, 98 Broadway, New York.  
E. CRANE, 99 State Street, Boston.  
1849.

**DEAN, PACKARD & MILLS,**

MANUFACTURERS OF ALL KINDS OF

**RAILROAD CARS,**

SUCH AS

PASSENGER, FREIGHT AND CRANK CARS,

— ALSO —

SNOW PLOUGHS AND ENGINE TENDERS  
OF VARIOUS KINDS.

CAR WHEELS and AXLES fitted and furnished at short notice; also, STEEL SPRINGS of various kinds; and

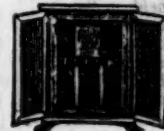
**SHAFTING FOR FACTORIES.**

The above may be had at order at our Car Factory,

REUEL DEAN,  
ELIJAH PACKARD, } SPRINGFIELD, MASS.  
ISAAC MILLS, } 1748

**Iron Safes.**

FIRE and Thief-proof Iron Safes, for Merchants, Banks and Jewelers use. The subscriber manufactures and has constantly on hand, a large assortment of Iron Safes, of the most approved construction, which he offers at much lower rates than any other manufacturer. These Safes are made of the strongest materials, in the best manner, and warranted entirely fire proof and free from dampness.



Western merchants and the public generally are invited to call and examine them at the store of E. Corning & Co., sole agents, John Townsend, Esq., or at the manufactory.

Each safe furnished with a thief-detector lock, of the best construction.

Other makers' Safes repaired, and new Keys and Locks furnished at the shortest notice.

H. W. COVERT,  
cor. Steuben and Water sts. Albany.  
August 24, 1849.





### NEW YORK IRON BRIDGE COMPANY.

The Bridges manufactured by this Company having been fully tested on different Railroads, by constant use for more than two years, and found to answer the full expectations of their most sanguine friends, are offered to the public with the utmost confidence as to their great utility over any other Bridge now known.

The plan of this Bridge is to use the iron so as to obtain its greatest longitudinal strength, and at the same time it is so arranged as to secure the combined principles of the Arch, Suspension and Triangle, all under such controlling power as causes each to act in the most perfect and secure manner, and at the same time impart its greatest strength to the whole work.

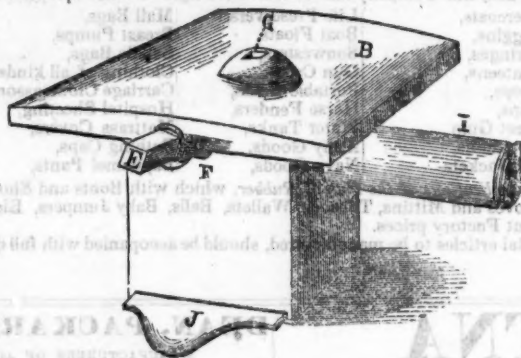
THE NEW YORK IRON BRIDGE COMPANY are prepared to furnish large quantities of Iron Bridging for Railroad or other purposes, at short notice, and at moderate prices.

Models, and pamphlets giving full descriptions of the above Bridge, with certificates based on actual trial from undoubted sources, will be found at the office of the Company, 39 Jauncey Court, Wall st., or of W. RIVER & BROTHERS, 19 Nassau Street, where terms of contract will be made known, and where orders are solicited.

August 29, 1849.

M. M. WHITE,  
Agent for the Company.

### E. Harris' Patent Rotary Blacksmith Tuyere.



LETTERS Patent were issued January 9, 1849, to E. HARRIS, of Springfield, for an Improved Rotary Blacksmith Tuyere. Since that time there have been some hundreds put in operation, giving satisfaction and full proof of superiority over all others.

This Tuyere is so arranged that by one movement it can be changed from the largest work to the smallest; at the same time the fire is changed in proportion, thereby making a great saving in coal. Words cannot convey the full merits of this Tuyere; nor is it deemed necessary to speak in disparagement of other Tuyeres, as every smith is capable of judging for himself, and will give merit where merit is due.

I will simply say that there has not been a single instance where I have had my Tuyere put in use but it has given full satisfaction, and is recommended by all who have used them, as being superior to any other ever introduced. I would invite all to give them a trial; and the names of those using them being given, I hope it may induce others to try them, as they recommend themselves.

Western Railroad Shop, Springfield, Mass.  
Connecticut Valley, Springfield, " "  
Hartford, " "  
Hartford, Conn.  
New Haven, " "  
New Haven, Conn.  
Norwich and Worcester, Norwich, " "  
N. York and N. Haven, New Haven, " "  
Saratoga and Whitehall, Saratoga, N. Y.  
Vermont Central, " "  
Hudson and Berkshire, Hudson, " "  
L. Kingsley, Canton, Mass.

Hadley Falls Co. Ireland, W. Springfield, Mass.  
Sidney Patch, Boston, "  
Ames Manuf. Cor., Chicopee, "  
American Machine w'ks, Springfield, "  
Dean, Packard & Mills, " "  
G. Frank Bradley, N. Haven, Conn.  
Andrew Baird, " "  
Collis & Lawrence, " "  
Slate & Brown, Windsor Locks, "  
Gage, Nashua, N. H.  
Machine shop, Manchester, "  
Louis F. Lannoy, Baltimore, Md.  
J. H. Baerid, 179 Chambers st. N. Y.  
J. Fanning, Rochester, "  
G. W. Hunt, 41 Gold st. "  
Chamberlain & Waldo, " "  
P. S. Burges, carriage maker, " "  
Samuel Miller, " "  
J. Leggett, Stevenson falls, "  
J. E. Harris, Hillsdale, "  
John L. Graham, Albany, "  
David Dalsell, South Egremont, Mass.  
Roys & Wilcock, Berlin, Conn.

Agents for the sale of Tuyeres:  
B. B. Stevens in New York and Connecticut.  
W. S. Seymour in Massachusetts and R. Island.  
A. J. VanAllen has the Agency for the Western and Southern States, and is now travelling through those States. Any communication addressed to the patentee will receive prompt attention.

E. HARRIS, Patentee,  
Springfield, Mass.

November 23, 1849.

### CHRONOMETERS

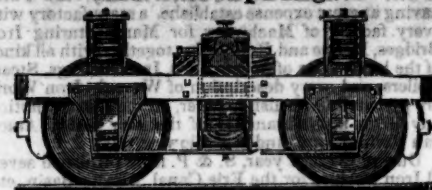
MERCHANTS, Ship Owners, Captains and others, are invited to examine the advantages offered in the purchase of Chronometers, by HARRY & SON, Makers, 93 Wall Street, (up stairs,) in their superior quality and great reduction of price.

H. & S. have for many years been engaged in the manufacture of Chronometers, for the first houses in the trade, and also, for the Navy of most Nations,

and have received numerous rewards for their superior performance. Their Chronometers may be obtained from the Observatory at Liverpool, by order from H. & S., and at City Road, London. They are warranted to give satisfaction; but if not approved of, will be exchanged in New York, London, or Liverpool.

Rating, Cleaning and Repairs, at low charges.  
The Trade supplied on the most liberal terms.  
November 17, 1849.

### F. M. Ray's Patent India-rubber Car Springs.



India-rubber Springs for Railroad Cars were first introduced into use, about two years since, by the inventor. The New England Car Company, now possesses the exclusive right to use, and apply them for this purpose in the United States. It is the only concern that has tested their value by actual experiment, and in all arguments in favor of them, drawn from experience of their use, are in those cases where they have been furnished by this company. It has furnished every spring in use upon the Boston and Worcester road, and, in fact, it has furnished all the springs ever used in this country, with one or two exceptions, where they have been furnished in violation of the rights of this company; and those using them have been legally proceeded against for their use, as will invariably be done in every case of such violation.

The Spring formed by alternate layers of India-rubber discs and metal plates, which Mr. Fuller claims to be his invention, was invented by Mr. Ray in 1844. In proof of which we give the deposition of Osgood Bradley, of the firm of Bradley & Rice, of Worcester, Mass., car manufacturers, and men of the highest respectability. In this deposition, in relation to the right of parties to use these springs, he says:

"I have known Mr. Ray since 1835. In the last of May or the commencement of June, 1844, he was at my establishment, making draft of car trucks. He staid there until about the first of July, and left and went to New York. Was gone some 8 or 10 days, and returned to Worcester. He then on his return said he had a spring that would put iron and steel springs into the shade. Said he would show it to me in a day or two. He showed it to me some two or three days afterwards. It was a block of wood with a hole in it. In the hole he had three pieces of India-rubber, with iron washers between them, such as are used under the nuts of cars. Those were put on to a spindle running through them, which worked in the hole. The model now exhibited is similar to the one shown him by Ray. After the model had been put in to a vice, witness said that he might as well make a spring of putty. Ray then said that he meant to use a different kind of rubber, and referred to the use of Goodyear's Metallic Rubber, and that a good spring would grow out of it." There are many other depositions to the same effect.

The history of the invention of these springs, together with these depositions, proving the priority of the invention of Mr. Ray, will be furnished to all interested at their office in New York.

This company is not confined to any particular form in the manufacture of their springs. They have applied them in various ways, and they warrant all they sell.

The above cut represents precisely the manner in which the springs were applied to the cars on the Boston and Worcester road, of which Mr. Hale, President of this road speaks, and to which Mr. Knevit refers in his advertisement. Mr. Hale immediately corrected his mistake in the article quoted by Mr. Knevit, as will be seen by the following from his paper of June 8, 1848. He says:

INDIA-RUBBER SPRINGS FOR RAILROAD CARS.—"In our paper yesterday, we called attention to what promises to be a very useful invention, consisting of the application of a manufacture of India-rubber to the construction of springs for railroad cars. Our object was to aid in making known to the public, what appeared to us the valuable properties of the invention, as they had been exhibited on trial, on one of the passenger cars of the Boston and Worcester railroad. As to the origin of the invention we had no particular knowledge, but we had been informed that it was the same which had been introduced in England, and which had been subsequently patented in this country; and, we were led to suppose that the manufacturers who have so successfully applied this material, in the case to which we referred had become possessed of the right to use that patent. It will be seen from the following communication, addressed to us by a member of the company, by which the Worcester railroad was supplied with the article upon which our remarks were based, that we were in an error, and that the springs here introduced are an American invention, as well as an American manufacture. How far the English invention may differ from it we have had no opportunity of judging."



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## STEAM NAVIGATION, COMMERCE, MINING, MANUFACTURES.

HENRY V. POOR, Editor.

ESTABLISHED 1831.

PUBLISHED WEEKLY, AT No. 136 NASSAU ST., NEW YORK, AT FIVE DOLLARS PER ANNUM IN ADVANCE.

SECOND QUARTO SERIES, VOL. VI, No. 8] SATURDAY, FEBRUARY 23, 1850. [WHOLE No. 723, VOL. XXIII.

### ASSISTANT EDITORS,

J. T. HODGE, *For Mining and Metallurgy.*  
GEN. CHAS. T. JAMES, *For Manufactures and the  
Mechanic Arts.*  
M. BUTT HEWSON, C. E., *For Civil Engineering.*

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### American Railroad Journal.

PUBLISHED BY J. H. SCHULTZ & CO., 136 NASSAU ST.

Saturday, February 23, 1850.

### CAUTION.

RAILROAD COMPANIES and others are hereby cautioned against using or vending our improvement for easing the lateral motion as applied on Railroad Cars. Letters Patent having been granted to us in 1841, any party or parties so making or using said improvement without license from us will be proceeded against according to law.

DAVENPORT & BRIDGES.

### Free Banking.

A friend from the State of Maine, has requested us to give a synopsis or abstract of the present Law of New York known as the Free Banking Law. The act of April 18, 1838, entitled "An Act to authorize the business of banking," is the foundation of this system, and the legislation on the subject runs through the statute book from that time to the present.

We propose, in future numbers, to give a full synopsis of the Laws of New York in relation to this matter.

### Bangor and Waterville Railroad.

We learn that over four thousand shares, or something more than the amount, (\$400,000) required to enable the stockholders to organize the company were taken up in the stock of the Penobscot and Kennebec railroad company during the present week. We are further told that arrangements are so far consummated that as soon as the line can

be thoroughly surveyed and the necessary connections formed, that the road will be put in progress. Whoever will take the trouble to look carefully over a map of Maine will see, that with no competing line between the Penobscot and Kennebec rivers, this road offers inducements to capitalists beyond any unoccupied route in New England.

### Portland and Montreal Railway.

The importance which this great international line of railway, from the Atlantic seaboard to the St. Lawrence river at Montreal, has acquired, in view of the recent measures adopted for its completion, lead us to give pretty full extracts from the Fifth Annual Report of the Directors of the St. Lawrence and Atlantic Railroad Co., laid before the Stockholders on the 16th of January last.

There has been exhibited a degree of boldness and of energy in the prosecution of this great enterprise, in all the successive stages of the undertaking, scarcely paralleled in the history of the railway system. The success of these efforts has so far been equal to the most ardent wishes of its friends.

The details of the measures by which the completion of the road has been made certain, will serve as useful hints to parties engaged in similar enterprises.

There seems to be no good reason why enterprises of acknowledged utility, and ensuring a certain return of interest on their cost, should not be aided by the corporate credit of cities, a majority of whose property holders have embarked their means in their construction.

The Directors of the St. Lawrence and Atlantic Railroad Company beg leave to submit their Annual Report.

The directors have the honor to report that the section of the railroad from Longueuil to St. Hyacinthe was opened for traffic on the 27th December, 1848, and with certain unavoidable interruptions, continued in operation until the 15th November last, when, under the new arrangements, hereinafter stated, it was finally discontinued. The result will appear in the accounts.

The directors have further to state to the proprietors, that in the view of raising additional funds for the completion of the railroad, they caused a bill to be brought before the legislature at its last session, authorising the issue of "new and preferential shares" in the company, which should be entitled to a dividend of six per cent. in preference to the original shareholders. This bill, which also contained other provisions deemed necessary for the proper arrangement of the affairs of the company,

received the Royal assent on the 30th May last, and is now laid before the proprietors.

The directors have to congratulate the proprietors on the legislature of Canada having, at its last session, passed a bill for affording the Provincial guarantee to the bonds of all railroad companies; the extent of whose works should amount to not less than 75 miles, whenever one half of such road should be completed, provided that the sum to be so guaranteed should not exceed that expended by the company. The said act also contains provisions for the formation of a sinking fund, and is wisely calculated to promote the construction of works of undoubted utility, but which the paucity of individual resources in the Province might otherwise indefinitely postpone. In the case of the St. Lawrence and Atlantic railroad, the directors are bound to acknowledge that unless they had thus received the assistance of the Province, they must for a long period have despaired of their ability to complete this work, which the position of commercial affairs shows to be essential not merely to the city of Montreal, but to retaining a large share of the western trade to the channel of the St. Lawrence.

Although the directors derived great encouragement from the action of the legislature, their hopes of immediate success were for a season much depressed by the unfortunate political disturbances which at the same period agitated this city. They felt that until time had mitigated the effect of these disturbances, it would not be in their power to mature any scheme for the promotion of the enterprise; and they anxiously awaited the moment when public confidence should be sufficiently restored to warrant their making an appeal to those parties on whom they relied for aid to enable them to fulfil the condition attached to the governmental assistance, by the completion of one half of the railroad to the Province line, viz: 33 miles beyond St. Hyacinthe.

In the month of July, the directors believed that the period had arrived when action could be advantageously taken, and in this assurance an application was addressed to the corporation of the city of Montreal, urging on them the importance of following the example of the corporation of the city of Portland, by their granting their aid to the St. Lawrence and Atlantic railroad company to the extent of £125,000, by the subscription of new and preferential shares, payable by city debentures, bearing 6 per cent. interest. While this application was pending before the city council, a negotiation was opened with Messrs. Black, Wood & Co., the principal contractors, on the section already completed, to ascertain whether they would undertake the completion of the railroad, accepting in payment the various securities which the directors were in treaty for. A preliminary proposal was in consequence made by this firm in accordance with the wishes of the board, and was accepted as a basis for a future contract, and the terms of it com-



communicated to the city council, as evidence of the ability of the company to complete the railroad, on receiving the assistance of the city to the extent named. The directors have reason to believe that the information thus conveyed to the city council had an important effect in removing the objections of many influential individuals, and also operated on the public mind to produce the almost unanimous acquiescence of the citizens to the scheme laid before them by the council, and which resulted in the adoption, on the 6th August last, of a resolution pledging the city to take £125,000 in the preferential stock of the company, conditional on £25,000 of similar stock being lodged in their hands as security for the due payment of the interest, and further conditional on their being satisfied that the company had otherwise provided the means of completing the outlay that, with the city subscription, was required to entitle the railroad to the assistance of the Province.

After having advanced to this point, the directors resorted to the offer of Messrs. Black, Wood & Co., for the purpose of ascertaining how far it might be possible to carry the proposal into effect.

It may here be proper to observe that the directors felt that the time had arrived when a powerful effort might be made to ensure the speedy completion of the entire road. They believed that to endeavor to proceed section by section, as their means might be made available, was to lower the value of the company's stock for an indefinite time—that doubts would continually be thrown on the ability and inclination of both their own and the American corporation to complete their respective portions of the entire line—that, notwithstanding the reports of engineers, a doubt would always rest on the public mind as to the ultimate cost of the road, and its ability successfully to compete for the western trade—and that, as the necessities of the company required them to make part payment of their work in stock, it was manifestly their interest to endeavor to raise the value of that stock, by effecting such an arrangement as would remove from the public mind all doubts and fears arising from the above causes.

The only method that appeared to ensure these great results, was to effect a joint engagement with the Portland company, whereby the entire line remaining unfinished should be simultaneously put under contract for a certain specified sum per mile, provided parties could be found who would undertake a work of such magnitude, and in whose character and resources the two corporations would have confidence. The offer of Messrs. Black, Wood & Co., seemed to this board such as to warrant the belief that, with the co-operation of the Portland Co., the desired arrangement could be carried out; and with a view of effecting the negotiations, Messrs. Young & Galt were nominated a committee to proceed to Portland to bring the views of the board to a successful termination. The proceedings of this committee the board have not space to state at length to the proprietors, but they are most happy in informing them that they found in Portland the most decided determination to prosecute the great enterprise, and that after a few days spent in negotiations, agreements were mutually entered into by the committee on the part of this company and the directors of Atlantic and St. Lawrence railroad company, on their own part with Messrs. Black, Wood & Co., for the execution of the entire uncompleted portion of the railroad from Montreal to Portland, at the specific price of £2550 per mile, the whole work to be completed within three years from the execution of the final contract. For the sum named, the contractors engaged to purchase land, complete the road with all bridges, turnouts, fences and appurtenances of every description similar in character to the portion of the road already built, when that should be completed by ballasting, excepting only the cost of engineering, the station and engine houses and water stations. The company to have the entire control of the engineering and direction of the work, arrangement of gradients, etc., and they further reserved the station and engine houses, and water stations, as the engineer of the company was not prepared to define the exact position, number and dimensions of their buildings.

The terms of payment arranged by the committee were as follows: £125,000 to be paid in the

city of Montreal debentures at par—one-fourth of the entire contract price, in the original stock of the company at par—and the balance in the bonds of the company bearing six per cent. interest, to be hereafter guaranteed by the government under the terms of the act passed for that purpose. It was further stipulated, that the contractors should accept in payment of the first 33½ miles required to be built prior to the Provincial guarantee being granted, the city bonds, and shares of the company at par, thereby relieving the directors of the necessity of providing funds, and also complying with the condition attached to the aid granted by the city.

The agreement entered into was subsequently ratified by the directors on the 15th September last.

While these negotiations were in progress, the pressure of the various claims against the company for work performed on the section from Longueuil to St. Hyacinthe became so serious, that the directors found that assistance had become absolutely necessary to enable them to carry out their plans, owing to the default made in payment of a large amount of subscribed stock of the company, principally held in England, on which reliance had been placed.

The directors believed that the sum of £50,000, added to the other assets of the company, would relieve them from embarrassment, and they trusted that this sum, in equal proportions, might be obtained from the Seminary of St. Sulpice, and the British American Land Co., who had both a very great indirect interest in the success of the enterprise. The mode in which it was proposed that this aid should be extended, was by guarantee of railroad company's bonds, and the principal difficulty in submitting the application arose from the fact of the company possessing no other security of the payment of the principal and interest, than the section of the railroad in operation, which, from various unavoidable causes, had, up to that time, yielded no revenue.

The directors, while their more immediate object was to ensure the payment of existing liabilities, could not overlook the fact, that during the future execution of the work, provision had to be made for the payment of £7500 per annum interest on the city debentures, and a further sum as interest on the government guarantee, whenever the progress of the work entitled them to demand it. These sums, with the proposed loan of £50,000 amounted, by calculation, in three years, during which the road was to be completed, to £33,000.

At the same time that the necessities of the company evidently dictated the adoption of such steps as would virtually ensure the payment of the above large sum, the conviction had been forced upon the directors, that, from various causes, the operation of the railroad by the company was not conducted with that economy they desired, and the expenses of their establishment were also heavier than circumstances warranted.

In this position, the directors decided to conclude a lease of the railroad, section by section, as completed, to Messrs. Black, Wood & Co., on terms that will be stated hereafter; whereby they were enabled to offer the Seminary and Land Company satisfactory security for the payment of interest on their proposed loan, and also to provide against the various other liabilities to arise during the progress of the work.

Not to occupy the time of the proprietors with unnecessary details, it will suffice for the board to state that the application to the seminary for their guarantee of £25,000 was successful, conditional on like assistance being afforded by the British American Land Company, which has since been agreed to by the directors of that company.

It will further be gratifying to the proprietors to learn, that the directors are informed that the Atlantic and St. Lawrence railroad company in Portland have executed a contract for the completion of their portion of the railroad with the same firm, and on similar terms.

To enable the company to issue the new and preferential stock to the city of Montreal, the assent of the proprietors was necessary. This was obtained at the special meeting held on 24th December, and the board are happy to state that the mayor of the city of Montreal subscribed the amount agreed upon, \$125,000, on the 26th of the same month.

The directors now beg to submit to the proprie-

tors the following abstract of these important arrangements:

They have executed a contract with Messrs. Black, Wood & Co. for the entire completion of the railroad to the Province line, to be finished by sections as follows:

St. Hyacinthe to the St. Francis, 38 miles, by 1st December, 1850.

St. Francis to Sherbrooke, 24 miles, by 1st December, 1851.

Sherbrooke to the Province line, 35 miles, by 1st December, 1852.

On the terms already stated in the report.

They have further executed a lease of a railroad for three years and two months, to Messrs. Black, Wood & Co. as follows:

From Longueuil to St. Hyacinthe, from 1st January, 1850, to 1st March, '53.

St. Hyacinthe to St. Francis, from 1st January, 1851, to 1st March, 1853.

For the sum of £40,260, payable as follows:

1st July, 1850, £3000 1st Jan., 1852, £7305

1st Jan., 1851, 3000 1st July, " 9825

1st July, " 7305 1st March, 1853, 9825

The company being bound, when duly notified, to furnish additional equipment, to the amount of £12,500; and the railroad, with appurtenances and equipment, to be returned to the company in perfect running order on the expiration of the lease.

They have also executed a contract with Messrs. Black, Wood & Co. for ballasting the section from Longueuil to St. Hyacinthe.

In all of these arrangements the directors have to acknowledge the very able assistance rendered them by the engineer of the company, C. S. Gzowski.

The city of Montreal has subscribed new and preferential shares for £125,000, and the debentures to be issued to the company are now in course of preparation.

The directors have further obtained under certain conditions which are now in course of being complied with, the guarantee of the Seminary of St. Sulpice, and the British American Land Company, to the railroad company's debentures for £50,000, payable in ten or fifteen years, on security of a mortgage on the railroad, with a right to accept preferential shares, and on an assignment of the sum of £3,000 yearly of the rent payable by Messrs. Black, Wood & Co.

With reference to the action already taken by the contractors, under the recent arrangements, the directors have the pleasure to submit a report from the engineer of the company.

In closing this statement of the transactions of the year, the directors feel themselves warranted in congratulating the proprietors on the circumstances in which the company now stands. And the directors are proud in being able to point to the arrangements they have made, as having, thanks to the generous of the corporations of the city of Montreal, of the Seminary, and of the Land Company, placed this company in a position of perfect ability, so far as can be foreseen, to complete their enterprise, and also, such as to warrant the directors in expressing their confident belief, that, although delay must occur in the payment of interest on the paid up capital, yet the investment may now be regarded as likely to equal the hopes of the most sanguine.

All which is respectfully submitted,

A. N. MORIN, President.

Montreal, 16th January, 1850.

#### RAILWAYS OF THE UNITED KINGDOM OF GREAT BRITAIN AND IRELAND.

The Companion to the British Almanac publishes annually an article upon the Railways of Great Britain. We compile from the volumes for 1849 and 1850 the following valuable statistics of the Railways of the United Kingdom:

Years.	Railway acts.	Miles sanctioned.
1801 to 1840	.....299	about 3000
1841	.....19	15
1842	.....22	67
1843	.....24	91
1844	.....48	796
1845	.....120	2983
1846	.....272	4790
1847	.....184	1863



In 1848, 83 new acts were passed, but of these only about 30 were empowered to construct new branch lines not exceeding 300 miles. In 1849, 35 new railway acts became law, 12 of which only contain provisions for new branch lines. The remainder are for the increase of capital, or to authorize extensions, leases, etc.

The monetary or Stock Exchange aspect of the railway system has exhibited most lamentable features, during 1849. The yearly dividends declared by the companies, and the current market prices of the shares, have suffered an amount of declension beyond even the gloomy anticipations entertained in the preceding year. The London and North Western is almost the only company which has maintained in 1849 the same rate of dividend, even, as in the preceding year, viz: 7 per cent. The Great Western, the Midland, the Lancashire and Yorkshire, the York and Newcastle, the York and North Midland, the Eastern Counties, the South Eastern, the South Western, Brighton, the Manchester and Lincolnshire—all have suffered a decided diminution of dividend. These ten great companies, whose works up to the present time have cost over one hundred millions sterling, have on an average declared, for the half year ending in the summer of 1849, a dividend on the regular non-guaranteed shares at the rate of less than 4 per cent. per annum—somewhere between 3 and 4 per cent. The remaining companies, about 60 in number, omitting the London and North Western, can hardly have reached an average of 2 per cent. per annum in the same half-year. Many of them, including the Caledonian, the Chester and Holyhead, the Great Northern, the Eastern Union, and others, in which the outlay has been very large, have barely realised enough to pay guaranteed interest and preference dividends, leaving nothing whatever for the regular shareholders; and a few though open for traffic, have been unable to pay even the guarantees.

This diminution in the actual commercial value of the undertakings has told unfavorably on the market prices. The disastrous state of matters in 1848 was brought about rather by political and commercial panic, than by deterioration in the real merits of the railway system; but the result of an over supply of lines is now felt significantly in diminished mileage receipts. The number of persons who wish to travel, and have the means of paying for travelling, does not increase so rapidly as the amount of capital laid out upon new railways: hence the sum available for net profits is relatively smaller; hence the dividends are less; and hence the market prices are lower. The London and N. Western, the Brighton and South Coast, and one or two other companies, have their shares at a somewhat higher price in October, 1849, than in October, 1848; but with these exceptions a declension has been general. In some of the companies the market price of shares was seven times as great in 1845 as in October, 1849.

There have lately been issued many parliamentary papers, besides the annual reports of the railway commissioners, which contain a mass of valuable information relating to the present state of the railway system. The object of these papers has been to exhibit both the social and the financial results of the system—the results to the travelling public, and to the railway operatives, as well as to the shareholders.

The first of these returns which we shall notice gives an account of the number and classification of all the persons employed in all the railways, in any capacity, at a particular date.

This return, applicable to May 1, 1848, is divided into three portions: 1st, The railways which were open for traffic on that day; 2d, Those which were in course of construction on that day; and 3d, Those on which works had not yet commenced. The lengths of these three portions were as follows:

Finished and open.....	4253 miles.
In progress.....	2958 "
Not commenced.....	4430 "

The number of companies engaged on those works was about 170. The number and description of persons employed on the whole were as follows:

	On lines open for traffic.	On lines not open.
Secretaries.....	81	103
Managers.....	30	93
Treasurers.....	29	31
Engineers.....	95	405
Superintendents.....	343	1897
Storekeepers.....	125	243
Accommodants.....	70	145
Cashiers.....	48	88
Draughtsmen.....	106	306
Clerks.....	4360	887
Artificers.....	10,814	29,087
Laborers.....	14,297	147,325
Inspectors.....	—	119
Land surveyors.....	—	26
Miners or quarrymen.....	—	6250
Foremen or overseers.....	1010	685
Police-men.....	2475	71
Porters and messengers.....	7559	10
Platelayers.....	4391	256
Drivers and carters.....	—	45
Engine drivers.....	1752	—
Engine stokers.....	1809	—
Guards.....	1464	—
Switchmen.....	1058	—
Gatekeepers.....	401	—
Wagoners.....	141	—
Brakesmen.....	32	—
Miscellaneous.....	197	116
Total.....	52,688	188,177

A few of the above, such as secretaries, engineers, etc., are probably enumerated twice, in relation to the opened and unopened portion of the same company's lines, but without attending to this slight diminution, we have the very large total of 240,865 persons employed upon British railways at one time. Of course the artificers and laborers who form so large a percentage of the whole, are relatively much more numerous on the partially finished than on the finished lines. The number of stations in the 4253 miles of railway open for traffic on the day in question was 1321, being nearly equal to one station for every three miles. If any day in the year 1849 had been taken for the enumeration, the numbers employed would probably have been smaller; for the difficulty of raising funds has compelled many of the companies to suspend operations on new works. Of the 2958 miles in progress on the day of the return, [a year and a half previous to the preparation of this paper] several hundreds have been since finished; but of the 4430 miles not then commenced, and of the new works afterwards sanctioned by acts of 1848 and 1849, only a small amount has been put in operation.

The above return refers to May 1, 1848. Another parliamentary paper, for December 31, 1848, relates both to the mileage and to the capital accounts, and exhibits some very instructive features. It includes the names of 213 companies. In other returns many companies are included in one with which they have been amalgamated; and this accounts for the discrepancy which often appears in such lists. The number of miles of railway belonging to all these companies open for traffic on the last day of 1848 was 5127. The excess of this beyond the 5080 miles given in another return for the same date, is attributable to the admission of a few miles of mineral [not passenger] railway in the one return, and not in the other. The length in progress was 2111, and the length not yet commenced 4795, making a total authorised length of 12,033 miles. [The former return for the 1st May in the same year, eight months previous, gave a total of 11,641 miles.] All the lines then open were double-railed, except 750 miles.

The financial arrangements of the companies present an astounding result. There had been paid up in actual cash by shareholders, to the end of 1847, the sum of £126,149,476, and by the lenders of money on debentures or other securities £40,788,765, making a total of £166,938,241. During the year 1848 the capital received by the companies, in shares was £30,359,102, and by loans £3,875,715, together £34,234,817. This sum added to the former gives, for the total money paid by shareholders and security holders, down to the 31st December, 1848, the truly enormous sum of £200,173,059. In addition to all this, the various companies retained powers to raise, by existing shares, by new shares,

or by loans, in 1849 and subsequent years, a further sum of £143,717,773. There is yet another addition to be made, in respect to acts passed in 1849; but this is not a very large item, relatively to former years.

The following is an abstract of the actual working of the whole of the railways in one given half year.

The number of companies actually working in the United Kingdom, to which this return relates, is 73. On account of the pending arrangements between some of the companies, concerning amalgamations and leaseings, it is doubtful how far exact accuracy could be attained; but the above is given as that which corresponded to the actual number of distinct companies working their lines at the close of 1848.

The total number of passengers conveyed on the 5080 miles of passenger railway then open, in the half year ending December 31, 1848, was 31,630,292; viz, 3,743,602 first class; 19,191,549 second class; 7,184,032 third class; 8,450,624 parliamentary class; and 60,485 mixed class. The parliamentary class includes those extra passengers whom the companies voluntarily convey, at fares lower than those of the second class: the mixed class is composed of those whom it has been found difficult to place under any of the other three headings. If we consider the third class as a general term, to be made up of the three last mentioned classes, we have the number 15,695,140. The gross receipts for conveying all the passengers amounted to £3,283,301, viz: first class, £1,003,516; second class, £1,360,468; third class, £919,317.

The above figures give us the materials for a few valuable averages. As there were 645 miles of new railway opened at different periods of the half year in question, the average mileage requires adjustment in making it the medium of calculation. We may take 4760 miles as about the average length for the half year; and hence we find that first class travelling amounted to 786 persons per mile, second class 2561 per mile, and third class 3297; in taking all the classes together we have 6644 passengers per mile. The third class passengers were nearly equal in number to those of the first and second class combined. The fares varied from 0.33d. per mile [third class on the Glasgow and Greenock] to about 3d. [first class express on some of the lines.] Each passenger, taking an average of all the journeys of all the classes, paid 2s. 1d. for his journey. This seems a very low average; but it becomes explicable when we take into account, first, the extensive use of day tickets, which reduces the price; and second, the immense numbers carried, at fares of a few pence each, on the Greenwich, the Blackwall, the North Woolwich, the Croydon, the Richmond, the Manchester and Ashton, the Manchester and Stockport, the Leeds and Bradford, the Newcastle and Shields, the Glasgow and Greenock and the Dublin and Kingstown railways. [The North Kent line will add to this list, but it was not opened at the period in question.] Separated into classes, we find that each first class passenger paid 5s. 4d. per average journey, each second class 2s. 3d., and each third class 1s. 2d. So far as can be determined from the returns, this gives an average of about 25 miles for first class journeys, 17 for second class, and 16 for third class. It is a natural consequence of the opening of new lines, and the supplying of defective links in long series of railway, that the average length of journeys increases. The total gives a mileage of about five hundred and fifty millions of miles of travelling, in journeys of about 18 miles each on an average, at an average charge of rather less than 1d. per mile. The effect of the discount on double journeys is taken into account in the above averages.

The gross receipts for goods, parcels, mails, carriages, cattle, etc., in the same half year, amounted to £2,461,663, which added to the £3,283,301 received from passengers, gave a total of £5,744,964. At the present time, allowing for additional lengths of railway open, the total receipts must be about one million sterling per average month. If the state of the manufacturing districts had been as flourishing as in some previous half years, the monthly receipts would have far exceeded this av-



average. It amounts to about £47 per mile a week. The receipts of the London and North Western, the greatest of the companies, have for many half-years maintained an average of about £100 per mile per week: sometimes a little more, but at other times a little less.

The openings of new lines, since the date of our last publication, have been pretty general throughout the kingdom. Beginning at the south, and working upwards towards the north, we find that the South Eastern company has opened its important North Kent line, commencing by a junction with the Greenwich line near the Surrey canal, and ending by a junction with the Gravesend and Rochester line at Gravesend; the Greenwich railway has been widened to receive this additional traffic, which promises to be very large. A junction between the North Kent line and the Bricklayers' Arms branch has also been opened. The Reading, Guildford and Reigate line, leased in perpetuity to the South Eastern company, and extending 46 miles in length, has been opened. The Brighton and South Coast co. has opened two short branches to Eastbourne and Hailsham. Of the branch lines belonging to the South Western co. there have been opened the loop line from Barnes thro' Chiswick to Hounslow, the Hampton Court branch, the Farnham branch, the Godalming branch, the Fareham and Portsmouth branch, and in the present autumn will be opened the extension from Datchet into Windsor. The operations of the Great Western company, in respect to new lines, have been limited; the lease of the Bristol and Exeter line has terminated; and the greater part of the enormous works undertaken in 1845-6, and guaranteed by the Great Western company, are still unfinished. The branches from Reading to Basingstoke, from Slough to Windsor, and from Chippenham to Westbury, are the only two portions opened. The South Devon railway has been finished in the two remaining miles from Laira to Plymouth.

In the Eastern and Midland districts, we find that the new opening have been numerous. The Maldon and Braintree branches, and the Sudbury branch by the Eastern Counties company, have been opened; as have also the extension from Stowmarket to Norwich, by the Eastern Union; and the Great Northern from Peterborough to Boston, from Boston to Gainsborough, and from Retford to Doncaster—these three last named portions, with other connecting links, have opened a new line of communication between London and Yorkshire. The East Lincolnshire, (leased to the Great Northern,) has finished the remainder of its line from Boston to Louth. The Manchester, Sheffield and Lincolnshire company has opened its connecting links so far as to give direct communication from Manchester to Great Grimsby, through Sheffield, Worksop, Retford and Gainsborough, together with branches to Lincoln and to the Humber opposite Hull. The Midland company has opened the Nottingham and Mansfield, and the Erewash Valley branches, and has extended the Leicester and Swannington branch to Burton, where it comes into connection with the North Staffordshire line. The London and North Western company's operations have not extended to any considerable mileage of additional railway; still there have been some important openings; the Ashton and Huddersfield, the Leeds and Dewsbury, and the portion of the of the Shropshire Union between Stafford and Shrewsbury, have been brought to a completion. The Shrewsbury and Birmingham line has been opened from Wolverhampton to Wellington. The Chester and Shrewsbury line, which had previously been opened to Rhuanon, has been extended to Shrewsbury. The North Staffordshire Company has nearly finished the whole of its extensive works; all being now opened except two short branches. The works of the South Staffordshire Company, previously opened from Bescot to Walsall, has been since extended through Lichfield to Alrewas. The Manchester and Matlock Railway has been opened from Ambergate to a few miles beyond Matlock. The Chester and Holyhead line is still wanting the line which will be shortly supplied by that unparalleled work of engineering—the Britannia tubular bridge.

In the North of England, the new openings have not been so numerous as in the central Counties. The York and North Midland and the York and Berwick Companies have added but little to the

lengths of line previously opened. The Leeds and Thirsk Railway, previously opened from Thirsk to Harrogate, has been extended to Leeds. The Lancashire and Yorkshire Company has opened the branches from Knottingly to Doncaster, and from Bury to Liverpool. A junction has been made at Methley between the Midland and the Great Northern lines. The South Yorkshire has been opened from Doncaster to Swinton. The Rossendale district of Lancashire has had a few additional miles of railway opened. The Whitehaven and Furness Railway is extended to Ravenglass.

In Scotland, the extensive and complex works of the Caledonian Company have been further advanced towards completion; the Clydesdale Junction, the Hamilton branch, and a new entrance into Glasgow, have been opened. The North British Railway has been extended from St. Boswell to Hawick. A few additional miles of railway have been opened in the district westward of the Caledonian lines; and the same may be said of the busy mineral district, lying within a short distance north and south of the Edinburgh and Glasgow Railway. The Nithsdale line has been opened from Closebun to Dumfries, whence a line has been for some months open through Annan to the Caledonian at Gretna. The Edinburgh and Northern line has been so far finished as to afford through routes between Edinburgh, Dundee, and Perth—excepting of course the Firths of Forth and Tay. The uninterrupted route from Stirling to Aberdeen is open nearly from end to end; from Stirling to Perth runs the Scottish Central; from Perth to Frickheim there are two lines, one through Dundee and Arbroath, and one through Cupar and Forfar; from Frickheim the line is open to Brechin and Montrose; and it will probably by the end of the present year extend into Aberdeen. There is not a yard of railway north of Aberdeen; and many years are likely to elapse before such will be attempted; although there is an Act in existence for a line from Aberdeen to Inverness.

In Ireland a few steps have been made towards completing the net-work of railways. The Great Southern and Western extends from Dublin to Mallow, 22 miles from Cork, and the extension from Mallow to Cork has just been opened at the time we are now writing; a branch extends from this line near Tipperary to Limerick. The Irish South Eastern Company has opened 10 miles from Carlow to Bagnalstown. The Midland Great Western line has been extended 14 miles from Kinnegad to Mullingar. The Londonderry and Enniskillen Company has opened a portion of the line, from Londonderry to Strabane; and 19 miles of the Dundalk and Enniskillen line have been finished.

With respect to the new works carried on in 1849, there were 320 miles of new railway opened from January 1 to June 30; which, added to 5,157 previously open, makes a total of 5,447 miles. The passengers during the first half of 1849 amounted to 28,761,895. The railway calls for the first ten months of 1849 amounted to 17,700,964, against 30,073,610, in the first ten months of 1848.

In conclusion we may remark, that the Atmospheric system of traction has gone so far out of favor, that only the mile or two from Kingston to Dalkey, in Ireland, is managed in that manner; that the broad gauge has been increased in mileage by only a very small amount; that the magnificent stone viaducts over the Tyne and the Tweed are approaching completion; that the broad estuaries of the Humber and the Tay are crossed by steamers so formed as to receive rails and carriages upon their decks; that the Electric Telegraph is laid down along nearly all the main lines; and that fatal accidents on railways, instead of increasing in the same ratio as the mileage open, are decreasing both relatively and absolutely. This decrease of accidents has led to a remarkable application of the theory of probabilities to railways, in respect to assurance from death or injury. An Insurance Company has been formed, to work out the following plan: When a first class passenger takes his ticket, to go on any railway, he pays 3d. additional for a Life Insurance, which remains in force during the continuance of the journey, whether it be hours or only minutes. If a railway accident causes his death during that journey, the company

is responsible to his representatives for a payment of 1000l. In the second class it is 2d. for 500l., and in the third 1d. for 200l. A smaller payment is made for bodily injury without loss of life. The company can form its calculations only by observing the average ratio of accidents in past years. Another form of the same system, emanating from a different source, is to insure a passenger during all the railway journeys that he may take in a period of 3, 6, or 12 months: the sum insured is, or 1000l., and the premium paid being 10s. no distinction of class is here made.

#### Annual Report of the Canal Commissioners.

STATE OF NEW YORK,  
CANAL COMMISSIONERS' OFFICE,  
31st DECEMBER, 1849.

To the Legislature of the State of New York:

In accordance with the provisions of chap. nine, title nine, article second, of the first part of the Revised Statutes, and of chapter 350 Laws of 1847, the Canal Commissioners submit their annual report.

The board of Canal commissioners consisted, on the first day of January, 1849, of Nelson J. Beach, whose term of office extended to the first January, 1850; Jacob Hinds to the first January, 1851; and Charles Cook, (who has been re-elected in November preceding) to first January, 1852.

The board of commissioners was organized at their office in the State Hall, on the 1st day of January, 1849, by the re-appointment of Charles Cook, as President, and Nelson J. Beach as Secretary.

To Nelson J. Beach was assigned, in special charge, the eastern division of the canals, consisting of the following works:—

	Miles.
The Erie Canal, from Albany to the west side of the Oneida creek feeder.....	141
The Champlain canal.....	66
The Glen's Falls feeder.....	12
The pond above the Troy dam.....	3
The Oneida Lake Canal.....	6
The Oneida creek feeder.....	2
The black river canal, not finished.....	87
Total.....	317
To Charles Cook, the middle division, consisting of the Erie Canal, from the west side of the Oneida creek feeder to the east line of the county of Wayne, including the several feeders.....	76
The Chenango canal.....	97
The Oswego do.....	38
The Cayuga and Seneca.....	23
The Chemung do.....	39
The Crooked lake do.....	8
The Cayuga inlet.....	2
The Seneca river towing path.....	5
The Oneida river improvement.....	20
Total.....	308

To Jacob Hinds, the western division, consisting of the Erie Canal, from the east line of the county of Wayne to Buffalo, including the basins at the latter place.....

The Genesee Valley canal, not finished.....	118
Total.....	273
<b>Summary.</b>	
Eastern Division.....	317
Middle ".....	308
Western ".....	273

Total of authorised canals..... 898

Of the canals completed and authorised to be constructed, 723 miles have been in use the past season. To this will be added, on the opening of navigation in 1850, thirty-five miles of the Black river canal and Erie canal feeder and twenty miles of the Oneida river improvement; making 778 miles of canals and feeders, which will be in use at that time. There will then remain to be completed of the work now authorised and not in use, ten miles of canal and forty-two miles of slack water navigation of the Black river canal, and sixty-eight miles of the Genesee Valley canal. When these works are finished this state will possess a canal communication 899 miles in length.

In no previous year has the navigation of the



canals been subject to so little delay as for the year just closed. Detentions formerly so numerous and so vexatious and expensive to boatmen have nearly ceased; and the arrival of packets and line boats can be calculated with nearly the same certainty as of steamboats upon the Hudson. To this desirable result the introduction of the water of the Black river, in July last has much contributed. Without this, it is questionable if navigation could have been maintained upon the long level during the unprecedented low water of the last season.

The following exhibits the weekly average tonnage of boats upon the Erie canal in 1847, 1848 and 1849, taking one of the heaviest laden boats per day, which arrived at West Troy from Black Rock; and also the average time of making the passage between those points during the same period. This shows that the time of passing in 1847 was 10½ days, with an average cargo of 67 tons; with a cargo of 71½ tons in 1848, the time was 9 days; and in 1849, with a cargo of 67 4-5 tons it was but 8 3-5 days; showing a decrease of more than two days in the average time of passage between 1847 and 1849, or a saving of 1-5th in time and expenses to boatmen to do the same amount of business in 1849 that was required in 1847; or sufficient time saved in 1849 for an additional trip to Buffalo and back. This saving of expense, taking the cost of the trip at \$200, (which is a trifle less than the average of 3,500 boats, the number supposed to be in constant use) would be \$700,000 per annum: 67 4-5 10½ 9 8 3-5.

The following is a statement showing the number and the various tonnage of each class of boats, to Jan. 1, 1850:

Scows.	Deck.	Lake.	Bull.	Line.	Pack.	To-
						tal.

1281 1,556 856 417 675 78 4,863

The largest boat load which passed over a considerable portion of the canal weighed 104 800-2,000 tons, being that of the boat of T. J. Davis, from Oswego to Troy, with a cargo, principally of flour. Within a few years, a boat carrying 30 to 40 tons was considered to be very heavily laden, and it was supposed at that time that the canal, with 42 feet surface and 4 feet depth of water was taxed to its utmost capacity for transportation. Now, with the same depth of water, and generally the same surface, and a boat that can pass an old lock, more than double the cargo is taken without difficulty.

The annexed is a statement of amounts expended by the Canal Commissions, including their salaries, during the fiscal year ending the 30th September, 1849, upon the several canals for all purposes other than repairs:

On the Erie and Champlain canal....	\$9,585 31
On the enlargement of the Erie canal.....	1,011,418 43
On the Black river canal.....	373,878 99
On the Chenango canal.....	817 88
On the Oswego canal.....	4,939 70
On the Cayuga and Seneca canal.....	51,932 64
On the Chemung canal.....	19,376 06
On the Crooked Lake canal.....	2,168 87
On the Oneida river improvement.....	6,080 00
On the Genesee Valley canal.....	184,768 71

\$1,513,862 71

There has also been expended by the the commissioners since the close of the fiscal year, and to 1st January, 1850, the following sums, viz:

On the Erie and Champlain canal....	\$1,148 08
On the enlargement of the Erie canal.....	326,060 08
On the Black river canal.....	71,867 72
On the Genesee Valley canal.....	132,497 82
On the Oswego canal.....	18,098 92
On the Cayuga and Seneca canal.....	20,384 22
On the Chemung canal.....	21,275 24
On the Chenango canal.....	5,047 91

Annexed is a table of lockages at Alexander's Lock, three miles west of Schenectady:

No. of lockages from opening to close of canal.	Average No. of minutes to pass navigation.	Average No. of days to pass navigation.
1849.....36,918	168 57	8 66
1848.....219		

We annex a statement showing the amount expended by the superintendents of repairs, and the average cost per mile on each and all of the canals from 1846 to 1848, both inclusive:

Year.	Total miles.	Total average per mile.
1826.....	440	414
1827.....	440	528
1828.....	478	490
1829.....	500	509
1830.....	500	442
1831.....	500	361
1832.....	500	630
1833.....	537	694
1834.....	545	879
1835.....	545	793
1836.....	545	745
1837.....	642	766
1838.....	642	759
1839.....	642	591
1840.....	694	664
1841.....	700	511
1842.....	700	646
1843.....	700	547
1844.....	700	663
1845.....	700	743
1846.....	700	729
1847.....	700	709
1848.....	700	964
1849.....	700	744

Statement of tolls collected at the several collectors' offices in 1848 and 1849; together with the increase or decrease at each office for the latter year:

Office Collected at.	1848.	1849.	Increase.
New York.....	\$131,482 80	\$214,683 28	\$83,200 48
Albany.....	365,407 21	337,390 58	28,016 63*
West Troy.....	384,511 70	353,063 23	31,448 48*
Schenectady.....	9,857 28	11,296 52	1,439 24
Fultonville.....	12,703 28	11,433 53	1,270 75*
Little Falls.....	12,193 76	12,055 11	140 65*
Utica.....	72,205 08	58,746 16	13,458 92*
Rome.....	37,582 72	38,514 72	932 00
Syracuse.....	105,938 15	92,819 55	13,118 59*
Montezuma.....	104,046 39	94,346 58	9,699 81*
Lyons.....	21,686 75	19,235 70	2,451 05*
Palmyra.....	50,026 65	58,178 48	8,151 43
Rochester.....	310,719 33	199,472 91	11,246 42*
Brockport.....	38,579 33	64,060 10	25,480 77
Albion.....	26,125 56	21,629 46	4,496 10*
Lockport.....	137,682 94	238,081 23	95,398 30
Black Rock.....	260,022 01	63,689 34	196,332 67*
Buffalo.....	672,618 09	757,491 36	84,873 27
Waterford.....	10,965 16	9,578 95	1,386 31*
Schuylerville.....	13,027 59	7,145 50	5,882 09*
Glen's Falls.....	—	7,338 56	7,338 56
Whitehall.....	50,460 45	53,838 27	3,377 82
Salina.....	50,397 19	41,492 50	8,904 69*
Oswego.....	225,265 00	280,680 04	55,415 04
Geneva.....	59,172 61	48,161 00	11,011 61*
Havana.....	12,857 79	13,158 01	300 22
Horse Heads.....	36,121 48	25,895 10	10,226 33*
Corning.....	34,911 95	34,166 60	745 35*
Dresden.....	7,835 14	9,278 53	1,443 39
Penn Yan.....	19,498 87	21,925 55	2,426 68
Hamilton.....	4,232 04	3,626 19	605 85*
Oxford.....	8,378 74	6,524 18	1,854 56*
Binghamton.....	8,334 74	5,642 18	2,692 56*
Scottsville.....	31,180 56	30,610 59	569 97*
Dansville.....	25,368 21	26,741 84	1,373 63
Higgins.....	813 65	1,285 00	571 35

\$3,252,212 19 3,269,226 03 371,522 18

Total decrease.....\$355,508 34

Tolls collected yearly on each of the State Canals, also the amount of tolls received yearly from railroads, up to 1849, inclusive, and the aggregate amount of all the tolls so received:

Year.	Erie	Champlain	Oswego
Up to Canal.	Canal.	Canal.	Canal.
1849.....	1,453 82	163 27	3,207 87

Cayuga and

Year.	Seneca	Chemung	Crooked	Chenango
Up to canal.	canal.	canal.	canal	go canal.
1849.....	468 73	2,173 96	794 26	96 94

Average Annual Per cent of Increase.

59 92	6 53	152 76	20 38	135 87	49 64	8 08
-------	------	--------	-------	--------	-------	------

Total Per Cent of Increase.

Year.	Genesee	Oneida lake	Seneca	Oneida river
Up to canal.	canal.	canal.	river tow-	ver im-
1849.....	268 92	77 71	—	1,550 89

Cayuga inlet.	Railroads.	Aggregate of tolls received.
—	1,227 77	1,687 17

Average Annual Per Cent of Increase.

29 88 9 71 — 516 96 — 306 94 64 89

The annexed is a statement and classification of the tons and value of the total movement of all articles upon the canals, and the tolls upon each class, from 1837 to 1848 inclusive: [The returns for 1849 were not received in time to insert them.]

Year.	Tons.	Value.	Tolls.
1837.....	618,741	\$6,146,716	\$211,118
1838.....	665,089	6,338,063	229,993
1839.....	667,581	7,762,553	253,710
1840.....	587,047	4,609,035	197,904
1841.....	545,548	11,841,103	313,444
1842.....	504,597	5,987,219	211,979
1843.....	687,164	6,653,180	200,755
1844.....	864,373	7,422,737	363,547
1845.....	881,774	6,472,237	413,613
1846.....	916,976	6,422,409	354,886
1847.....	1,067,714	7,546,063	368,235
1848.....	1,080,880	7,219,350	367,494

Total Per Centage of Increase.

75 64 17 45 74 07

Average Annual Per Centage of Increase.

6 88 1 58 6 73

Year.	Tons.	Value.	Tolls.
1837.....	208,643	\$16,201,331	\$370,041
1838.....	255,227	19,390,714	468,495
1839.....	215,063	17,056,911	476,543
1840.....	393,780	18,644,481	808,623
1841.....	891,905	21,901,713	785,943
1842.....	401,276	16,987,843	805,376
1843.....	455,797	20,588,211	922,710
1844.....	509,387	23,379,643	1,009,773
1845.....	355,169	29,470,438	1,088,671
1846.....	874,258	35,820,986	1,439,793
1847.....	1,092,946	65,767,166	2,031,746
1848.....	913,844	42,850,086	1,602,905

Total Per Centage of Increase.

339 24 164 48 333 19

Average Annual Per Centage of Increase.

30 84 14 95 30 29

Year.	Tons.	Value.	Tolls.
1837.....	81,735	\$6,390,485	\$75,507
1838.....	101,526	5,915,856	74,941
1839.....	111,968	5,989,576	81,251
1840.....	100,367	4,719,054	75,765
1841.....	127,896	5,422,615	95,595
1842.....	98,968	4,435,289	70,611
1843.....	124,277	4,925,545	93,231
1844.....	144,245	6,151,806	123,061
1845.....	160,638	6,994,932	111,236
1846.....	149,006	7,015,311	81,288
1847.....	176,448	8,070,059	94,648
1848.....	202,781	7,433,957	112,355

Total Per Centage of Increase.

148 21 46 32 46 80

Average Annual Per Centage of Increase.

13 44 41 48 40

Subjoined is a statement of merchandise and other articles:

Year.	Tons.	Value.	Tolls.
1837.....	94,777	23,935,990	\$360,825
1838.....	124,290	31,594,692	566,911
1839.....	132,286	39,493,764	535,486
1840.....	112,021	35,636,943	427,966
1841.....	141,054	50,134,320	558,003
1842.....	101,446	30,042,153	393,876
1843.....	119,209	40,051,718	592,667
1844.....	141,930	49,224,099	585,147
1845.....	151,450	52,514,336	625,920
1846.....	169,799	52,084,488	548,227
1847.....	224,890	74,763,638	670,979
1848.....	261,458	76,945,463	779,420

Total Per Centage of Increase.

175 87 231 46 104 65

Average Annual Per Centage of Increase.

15 98 20 13 9 15



Tons.		OTHER ARTICLES—	
Value.		Tolls.	
1837.....	168,000	\$3,134,766	\$56,430
1838.....	186,879	2,507,233	78,555
1839.....	257,826	3,096,960	83,669
1840.....	223,231	2,793,379	80,467
1841.....	215,258	2,903,178	102,078
1842.....	130,644	2,509,104	101,840
1843.....	126,972	3,458,368	116,273
1844.....	156,651	4,742,867	172,968
1845.....	228,543	5,140,866	211,335
1846.....	218,623	4,349,315	110,241
1847.....	287,812	5,094,502	201,740
1848.....	331,287	5,637,301	149,601
Total Per Cent of Increase.			
97-19		83-02	165.
Average Annual Per Centage of Increase.			
8-83		7-53	15.
Total		Tolls on boats	
Value.		Total	
and passengers.		Tolls.	
1837.....	\$55,809,288	\$195,508	\$1,289,430
1838.....	65,746,559	219,457	1,589,357
1839.....	73,399,764	181,923	1,614,966
1840.....	68,303,892	185,022	1,775,747
1841.....	92,902,929	179,819	2,034,882
1842.....	60,046,608	165,515	1,749,196
1843.....	76,276,909	156,004	2,081,590
1844.....	90,920,852	191,879	2,446,374
1845.....	100,621,959	195,426	2,646,181
1846.....	115,612,109	223,669	2,756,106
1847.....	150,563,428	278,022	3,635,381
1848.....	110,086,157	240,341	3,252,212
Total Per Centage of Increase.			
51.		22-93	152-22
Average Annual Per Centage of Increase.			
13-63		2-08	13-83

The Annexed is a statement of tonnage ascending and descending, and the total of both; the value of ascending and also of descending freight; and the total of both, and the tolls from 137 to 1848 inclusive;

[The returns for 1849 were not received in time to insert them.]

Year.	Tons of		Value of		Tons of	
	up		up		down	
	freight.		freight.		freight.	
1837.....	559,515	33,986,934	611,781			
1838.....	692,531	42,708,949	640,481			
1839.....	833,585	53,178,565	602,128			
1840.....	747,034	43,090,319	669,012			
1841.....	747,327	64,977,607	774,334			
1842.....	570,305	37,265,595	666,626			
1843.....	676,578	47,823,501	839,861			
1844.....	797,492	56,737,985	1,019,024			
1845.....	780,068	55,100,924	1,204,943			
1846.....	906,343	64,516,853	1,362,319			
1847.....	1,125,527	78,471,014	1,744,283			
1848.....	1,348,325	89,202,250	1,437,905			
Total Per Centage of Increase.						
140-98		162-46	136-68			
Average Annual Per Centage of Increase.						
12-81		14-77	12-42			
Year.	Value of		Total		Tolls.	
	down		both.			
	freight.					
1837.....	91,822,354	55,809,288	1,289,430			
1838.....	938,510	65,646,559	1,589,357			
1839.....	93,199	73,399,764	1,614,966			
1840.....	20,157	66,303,892	1,705,747			
1841.....	23,913	92,902,929	2,034,882			
1842.....	27,225,3	60,046,608	1,749,196			
1843.....	22,751,013	76,276,909	2,081,590			
1844.....	28,453,403	92,195,2	2,446,374			
1845.....	34,183,167	100,55,109	2,646,181			
1846.....	45,452,325	115,612,109	2,756,106			
1847.....	51,105,256	151,563,428	3,635,381			
1848.....	73,092,414	146,086,157	2,522,212			
Total Per Centage of Increase.						
133-12		150-00	152-22			
Average Annual Per Centage of Increase.						
12-10		13-72	13-83			

The following is a statement of the tons of wheat and flour arriving at tide water, the produce of this State, and its value, the tons and value of that coming from other states, by way of Buffalo, Black Rock and Oswego, and the tolls; also, the tolls on

all other articles moving on all the canals, and the total tolls from 1837 to 1848 inclusive:

[The returns for 1849 were not received in time for insertion.]

Year.	Tons from other states		
	By way of	By way of	By way of
	Buffalo.	Black Rock.	Oswego.
1837.....	27,206	—	7,429
1838.....	57,977	—	10,910
1839.....	60,182	7,697	15,108
1840.....	95,573	12,825	15,075
1841.....	106,271	24,843	16,667
1842.....	107,522	13,035	14,338
1843.....	146,126	12,882	25,858
1844.....	145,510	15,669	42,293
1845.....	118,814	17,066	44,560
1846.....	247,860	16,564	63,905
1847.....	380,053	18,489	87,329
1848.....	253,325	19,376	90,411

Total Per Centage of Increase.

119-70 115-73 1,117-13

Average Per Centage of Increase.

108-97 16-86 101-55

Total Per Centage of Decrease.

— — —

Average Annual Per Centage of Decrease.

— — —

Year.	Tons the produce of this state.		Total tons arriving at tide water.	
	at tide water.			
1837.....	81,856	116,491	133,080	
1838.....	65,093	124,683	244,862	
1839.....	41,796	201,364	198,231	
1840.....	121,389	248,780	277,865	
1841.....	53,569	320,463	419,363	
1842.....	63,336	511,205	431,641	
1843.....	63,914	68,529	—	
1844.....	74,393	—	—	
1845.....	140,223	—	—	
1846.....	91,037	—	—	
1847.....	65,334	—	—	
1848.....	68,529	—	—	

Total Per Centage of Increase.

— — 27-05

Average Annual Per Centage of Increase.

— — 2-45

Total Per Centage of Decrease.

— — 15-28

Average Annual Per Centage of Decrease.

— — 1-48

Year.	Total Value.		Tolls.	
1837.....	9,640,156	301,739	404,525	
1838.....	9,883,586	380,161	700,071	
1839.....	7,217,841	621,045	606,727	
1840.....	10,862,602	731,616	816,711	
1841.....	10,165,355	851,533	1,099,325	
1842.....	9,284,778	1,460,424	1,126,133	
1843.....	10,243,454	—	—	
1844.....	11,111,177	—	—	
1845.....	15,962,950	—	—	
1846.....	18,836,412	—	—	
1847.....	32,090,938	—	—	
1848.....	21,148,421	—	—	

Total Per Centage of Increase.

119-38 273-21

Average annual Per Centage of Increase.

10-85 24-83

Year.	Tolls on all other articles.		Total Tolls.	
1837.....	987,691	1,289,439	1,589,357	
1838.....	1,209,196	1,614,966	1,775,747	
1839.....	1,210,441	2,034,882	1,749,196	
1840.....	1,075,676	2,081,590	2,446,374	
1841.....	1,413,836	2,646,181	2,756,106	
1842.....	1,142,469	3,635,381	2,522,212	
1843.....	1,349,874	—	—	
1844.....	1,629,683	—	—	
1845.....	1,794,648	—	—	
1846.....	1,656,781	—	—	
1847.....	2,174,957	—	—	
1848.....	1,96,079	—	—	

Total Per Centage of Increase.

145-25 152-22

Average Annual Per Centage of Increase.

10-47 13-83

The average time per year that the canal has been opened for navigation for this period is 230 days; the greatest length of time in one year, was 269 days, in 1828, and the shortest, 214 days, in '46 and in '47.

The average time of navigation on the Hudson has been 276 days per year; the longest time in any one year was 320 days, in '38, and the shortest 242 in '43.

The earliest opening of the lake was the 7th March, '42, and the latest the 16th May '37.

The comparative value of commerce upon the canals of this state with the value of the foreign commerce of the United States is as annexed:

Total value of imports, exclusive of specie, into the United States, for the year ending the 30th June, 1848..... \$154,977,876  
Total value of all articles transported on the canals for the year 1847..... 151,563,428

Difference in favor of foreign importations..... \$3,414,448

Total value of imports into the United States, exclusive of specie, for the year ending 30th June, 1849... \$147,857,390

Total value of all articles transported on the canals for the year 1848.... 140,086,157

Difference in favor of foreign importations..... \$7,771,282

The total exports, exclusive of specie, for the year ending June 30, '48, were of domestic productions..... \$132,704,121

Add value of foreign products afterwards exported..... 21,126,010  
\$153,832,131

The total exports, exclusive of specie, for the year ending 30th June, '49, were of domestic productions..... \$132,666,955

Add value of foreign products afterwards exported..... 13,088,865  
\$145,755,820

Total exports, the growth, produce or manufacture of the United States, for the year ending the 30th June, '48..... 132,704,121

Total value of all articles transported on the canal in '47..... 151,563,423

Difference in favor of canal commerce \$18,859,307

Total exports, the growth, produce or manufacture of the United States, for the year ending the 30th June, '49..... \$132,666,955

Total value of all article on the canal in '48..... 140,086,157

Difference in favor of canal commerce \$7,419,282

From the above statement it appears that the value of the canal commerce of the State of New York, in the year 1847, exceeds the total domestic exports from the United States for the year ending the 30th of June, 1848, by the sum of \$18,859,307; and the canal commerce for the year 1848 was greater than the domestic exports for the year ending 30th June, '49, \$7,419,202.

The value of the American lake commerce for the year 1847 was as follows:

	Imports.	Exports.	Total of both
Lake Ontario.....	\$9,688,485	11,627,770	21,316,255
" Erie.....	51,450,975	58,147,058	109,598,033
U. Lakes.....	5,087,158	5,309,105	10,396,263
	66,226,618	75,083,933	141,310,551

The value of western products received at New Orleans, for '48 and '47 was \$84,912,800.

All which is respectfully submitted,

N. J. BEACH,  
CHARLES COOK,  
JACOB HINDS.



## Indiana in 1850.

Samuel Merrill, Esq., formerly President of the State Bank of Indiana, and afterwards President of the Madison and Indianapolis railroad, has communicated some interesting statistics of that rapidly growing State, in a letter to Hamilton Smith, which is published in the Cannelton Economist.

Mr. Merrill puts the total population of the State on the 1st of July last, at 1,025,000. Steamboat navigation (the Ohio) on the southern border of the State, "at least eleven months in the year," 370 miles; on the Wabash, "for about four months in the year," 330 miles; on the St. Joseph, "for about six months," 20 miles; on lake Michigan, 50 miles, making a total of 770 miles of steamboat navigation. The flat boat navigation is stated at 1580 miles. It consists, in addition to the Ohio, Wabash and St. Joseph, above mentioned, of the following particulars: White River, four months, 50 miles; West Fork, two months, 235 miles; East Fork, two months, 175 miles; Muscatitack, one month, 75 miles; Potoka, three months, 50 miles; Anderson, two months, 30 miles; Vermilion, two months, 20 miles; Tippecanoe, three months, 75 miles; Kan-kakee, six months, 100 miles; Fallow, three mos., 30 miles.

Indiana has the following railroads and parts of railroads completed, viz: Madison and Indianapolis, 86 miles; Shelbyville branch, 16 miles; New Albany and Salem, 33 miles; Jeffersonville and Columbus, 26 miles; Shelbyville and Rushville, 20 miles; Shelbyville and Knightstown, 26 miles; Lafayette and Indianapolis (north end) 33 miles; Peru and Indianapolis (south end) 22 miles; Indianapolis and Bellefontaine, 28 miles; Terre Haute and Indianapolis (west end) 33 miles, making a total of railroads completed, 323 miles. The am't equipped and in use is not stated.

A railroad from Lafayette to Crawfordsville, 28 miles, has been put under contract, and Mr. Merrill says of the 56 miles of the Indianapolis and Bellefontaine road, not included above, "the whole will soon be completed." In addition, Mr. M. says—"surveys have been made to extend the New Albany and Salem railroad to Bedford 30 miles, on the whole route from Jeffersonville to Columbus about 40 miles beyond the part under contract. The Lafayette and Indianapolis railroad has been surveyed to this place [Indianapolis] 63 miles in all. Peru and Indianapolis do, 70 miles in all. Terre Haute and Indianapolis do, 73 miles in all. These last two roads will progress to completion, but not rapidly."

The agricultural products of Indiana last year, Mr. Merrill estimates at 45,000,000 bushels corn, 8,000,000 bushels wheat, 18,000,000 bushels oats, rye, barley, etc. Hogs fattened last year, 1,300,000 head, of which he supposes 650,000 were exported. Average price of wheat through the state 50 cents. Near a market it was from 66 to 70 cents per bushel, remote from a market 40 cents; corn from 10 to 30 cents, according to situation. Hay is stated to average in price \$5 per ton. Beef and pork are put at \$1 50 to \$3 per 100 lbs.

There is much irregularity in the assessments of property for taxation. Mr. Merrill thinks that real estate is assessed at about two thirds its actual value. On this the State, county and road taxes, am't to about 40 cents on the \$100, or 26½ cents on the actual value.

Of the 22,400,000 acres of land in the State, Mr. M. represents that 14,200,000 acres is first rate farming land, 4,450,000 inferior farming land, and 3,750,000 refuse land.

## THE IRON TRADE.

The supplies of iron sent forward from the interior of Pennsylvania in 1848 and 1849, have been as follows:

1849—ROUTE.	Bar and sheet.	Pig and scrap.	Castings & blooms.	Nails & spikes.	Totals.	1848—ROUTE.	Bar and sheet.	Pig and scrap.	Castings & blooms.	Nails & spikes.	Totals.
Chesapeake and Delaware canal.	4,568,391	41,091,379	3,691,825	925,986	48,256,581	Chesapeake and Delaware canal.	14,988,260	88,713,098	5,536,410	1,370,293	105,028,061
Delaware canal, Bristol.	61,696	58,562,532	466,384	742,041	119,602,653	Delaware canal, Bristol.	1,117,515	50,733,874	109,227	1,338,415	52,158,631
Schuylkill Navigation.	7,963,200	77,490,560	6,354,880	2,582,790	108,391,430	Schuylkill Navigation.	10,233,860	29,305,120	3,071,040	1,486,120	33,696,140
Columbia and Reading railroads.	10,209,500	2,063,300	1,578,900	2,794,400	16,645,700	Columbia and Reading railroads.	18,730,700	7,347,400	4,223,705	7,119,600	30,321,405
Norristown railroad.	4,448,060	5,935,600	2,020,416	2,794,400	15,142,476	Norristown railroad.	5,866,288	2,564,108	1,672,780	1,672,785	11,175,861
Totals.	27,250,847	185,133,371	14,112,405	7,045,147	323,541,770	Totals.	50,936,123	178,563,600	14,619,162	12,986,213	247,065,098

\* Including 1,337,225 pounds of wire.

## Cost of Locomotive Engines.

It is a gratifying fact to know that with all the skill, experience and capital of England, and the cheapness of labor there, in comparison with the liberal price paid in this country, that locomotive engines of the same general capacity, are furnished more cheaply from American workshops than from those of Great Britain.

Locomotives.	Cost in Eng-land.	Cost in United States.
15 in. cylinder, 20 tons weight.	\$9,360	\$8,300
16 " " 22 " "	10,142	8,000
18 " " 25 " "	12,000	10,000

English engines frequently exhibit a higher finish than most American engines; but for service and strength they are not superior to many now made in this country. We may safely predict, that the rapid advances now being made in mechanical invention in this country, with the opportunity afforded our mechanics to obtain the best results of the experience of the past, accumulated in the old world, will in the course of the next twenty years, place American skill in every branch of mechanical industry in advance of that of any other people.

## From the London Mining Journal.

## The Scotch Iron Trade—Annual Returns.

Throughout the year the course of the market for pig iron has been devious, and the result, we believe, in many instances, not equal to the expectations of parties operating. In anticipation of extensive spring demand, the market opened with animation and firmness, and the advancing prices which marked the close of 1848, progressed from 44s. to 44s. 6d. for mixed Nos. up to 53s. in the end of February, when it was discovered the hoped for demand had been over anticipated; the advantage could, therefore, be no longer maintained, and the price gradually declined to 42s. in May following. The settlement of the Schleswig-Holstein question afterwards revived the hopes of holders and speculators, and, under the influence of some fall export orders, the price again improved, attaining 46s. in

July and August, when—this demand having been supplied—it again receded to 42s. to 42s. 6d. in October. Since that date the market has fluctuated remarkably, forced up to 48s., receding to 45s., and recovering afterwards to 47s.—the prices again drooping almost imperceptibly to 45s. 6d. to 46—Last week business was more active, and the current value has advanced to 47s. to 47s. 6d. mixed Nos., and 48s. No. 1.—prompt cash, free on board, with 1s. to 1s. 6d. extra on three months open contract.

A steady, though not active, business has been transacted in manufactured iron, which has ruled between £5 10s. and £6 10s. for merchant bars.—We consider the present quotation of £5 10s. to £5 15s. less 4 per cent. discount for cash, to be well maintained, with rather more cheering prospects for spring orders.

Our tables show that, as compared with 1848, the product and stock of pig iron are 92,000 and 95,000 tons respectively in excess, while the entire shipments are 14,858 tons less—being 153,183 tons to foreign imports, and 221,943 tons coastwise in 1849, against 162,151 tons foreign, and 227,833 tons coastwise in 1848; they also include the comparative annual exports of this article to each country since 1846, with the prices per month, and the production and stock over the same period, and present the gratifying fact, that, notwithstanding the extreme depression in the iron trade generally, and the falling off in shipments and diminished consumption for malleable iron purposes in Scotland this year, the increase of stock has been little more than commensurate with the extra production since 31st Dec., 1848. It, therefore, follows that our local and interior requirements must have improved to the extent of the above decrease in the items of shipments and malleable iron.

Taking into consideration the extensive stocks here and throughout the north of England (where founders and others having availed of the late temporary, yet extensive, reduction of rates of transport, per railways and canal, in Lancashire, &c., to lay in heavy supplies on extremely advantageous terms,) as well as on the seaboard of America, and the actively increasing make of Scotch pig iron, there may be some reason to apprehend a marked increase of accumulated stock in this district by the time spring shipments open; and should the American Government succeed in further taxing this article in their tariff, these circumstances combined would have a very unfavorable effect on the iron interests of the country. The general belief, however, is that the present rate of duty on pig iron in America will remain unaltered this session of Congress, in which case, as also from the commercially favorable state of that country, an increased extent of exports thither may be anticipated.

The continent of Europe being now politically quiet, a result similarly favorable may also be expected from that quarter.

PRICES OF PIG IRON.											
Price in 1846. 1847. 1848. 1849.											
January	£4 0s 0d	3 13 4	2 8 4	2 7 0							
February	3 17 6	3 13 4	2 10 0	0 3 11	7						
March	3 10 0	3 11 1	1 2 4	4 3 9	9						
April	3 6 0	3 10 8	2 1 9	2 8 0	0						
May	3 10 0	3 5 3	2 2 3	2 3 9							
June	3 8 0	3 5 0	2 3 0	2 4 4							
July	3 10 0	3 8 1	2 5 6	2 5 0							
August	3 15 0	3 7 9	2 5 3	2 5 4							
September	3 13 6	3 6 2	2 5 3	2 4 0							
October	3 0 6	2 19 10	2 3 0	2 2 10							
November	3 9 0	2 11 0	2 2 0	2 4 3							
December	3 12 6	2 7 6	2 4 2	2 7 3							
Averages	£3 16 3	3 11 8	3 5 0	3 6 1							

PRICES OF COMMON BAR IRON.											
1847. 1848. 1849.											
January	£9 15s 0d	8 7 15	5 15 6	5 15 0							
February	9 10 0	8 7 16	6 6 15	6 15 0							
March	9 10 0	7 5 0	7 6 15	7 15 0							
April	9 5 0	7 5 0	6 10 0	6 10 0							
May	9 5 0	6 10 0	6 5 0	6 10 0							
June	9 5 0	6 10 0	6 5 0	6 10 0							
July	9 10 0	6 5 0	6 5 10	6 10 0							
August	9 7 6	6 5 0	6 5 10	6 10 0							
September	9 10 0	6 5 0	6 5 10	6 10 0							
October	9 5 0	6 0 5	7 6 15	7 15 0							
November	9 0 0	5 5 0	6 5 10	6 15 0							
December	8 0 5	5 0 5	6 13 6	6 5 7							



## AMERICAN RAILROAD JOURNAL.

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MAJOR T. S. BROWN having, in leaving this country, resigned his office as Treasurer of this Association, the Committee appointed for that purpose have selected as his successor GEO. M. DEXTER, Esq., of Boston.

Those desiring to subscribe will therefore please direct their communications to Geo. M. Dexter, Civil Engineer, etc., Boston, Mass.

A. W. CRAVEN, Secretary, etc.  
New York, February 22, 1850.

**Railroad Iron.**

THE UNDERSIGNED, HAVING made arrangements abroad, are prepared to contract for the delivery of Foreign rails, of approved brands upon the most favorable terms.

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COOPER & HEWITT,  
17 Burling Slip, New York.

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**Pacific Railroad.--St. Louis.**

We gave last week a notice of the preliminary proceedings of the corporators named in the act of the Legislature of Missouri, to construct a railroad from St. Louis to the western line of that State. Since then we have learned that the amount now subscribed has reached \$300,000. It is believed that \$1,000,000 for this object can be obtained in St. Louis alone.

We regard this movement as by far the most important that has yet been made in reference to a railroad to the Pacific. It is the appropriate and most efficient step that St. Louis could have taken to secure to herself the western terminus of this great work. It cannot fail to place her in a stronger position than any of her rivals, and to enable to combat great odds in their favor; and, all things being equal, to carry off a prize of inestimable value.

In the first place, it is for the interest of St. Louis and Missouri to construct the proposed road through that State, if it is carried no further. We are aware that there is a general feeling existing, that railroads are articles of luxury, very pleasant and convenient to be sure, but which may very well be dispensed with without great loss or injury to the public. Nothing can be a greater mistake. As producers of wealth they take the lead among all modern discoveries. Cost of transportation is one of the items that make up the aggregate cost of an article sent to market as much as cost of production. In this country, where from the sparseness of our population, the small number of large towns, and the great distance that separates the agricultural from the manufacturing and commercial sections, the difference in the cost of transportation is what renders the surplus crops of the western farmer valuable or worthless. A remote section, by building a railroad through it, could be made to be worth thousands of dollars where it is now only worth hundreds. Man might just as well expect to make money in the manufacture of cloths by discarding the power loom, and returning to the old process of spinning and weaving by the hand, as can a city, or any section of the country, hope to retain its business and maintain its relative importance, without giving railway communications

to those sections of country upon it relies for its business and support.

What a perfect illustration of the necessity, that the construction of a railway by one town, imposes upon all others which have any rival interest, to defend themselves by constructing similar works. Look at Boston. A few years since her growth was nearly brought to a stand. The Erie canal gave to New York all the trade of the West, while the trade of New England was shared by Boston in common with a great number of smaller towns scattered along the widely extended sea coast of New England. At this juncture, Boston commenced the construction of her railroads, which have rendered that city and the State of Massachusetts the leading railroad community in the world, whether we take into consideration either the excellence of their construction and management, or their relative cost and extent compared with those of any other country. Massachusetts presents the best illustration that the world has yet seen of the influence of railroads in the accumulation of population or wealth.

Guided by a wise forecast, the leading men of Boston quietly and energetically pursued the work of constructing her lines of railway, which their great wealth enabled them to push in every direction that promised to open new avenues of trade to that city. The effect of this policy was soon apparent. The life-blood that once sustained the whole was turned into one channel, and transferred to one town what had been the support of many. The business of the other commercial towns of New England melted away as suddenly as the foliage of trees wither when deprived of the sap which gives them support. It was some time before these towns could realize the cause that so suddenly deprived them of their accustomed business. As soon as they fully understood the cause, the example of Boston taught them what they must do to regain the position they had lost. What has been the result? Every seaport in New England of over 7000 inhabitants has been forced to construct or commence the construction of railroads, to open a communication with those sections whose traffic it once enjoyed. Portland, the most important commercial town in New England, next to Boston, after losing a greater part of the country trade, by a most extraordinary effort has opened important lines of railway into the interior, and is now busy in completing a net work of railways throughout the western portion of Maine: and has the means provided and a contract made for the construction of a railway from the Atlantic to the waters of the great Lakes, by the shortest possible route, which will be completed as soon as the Erie road reaches Lake Erie, or the Baltimore and Ohio railroad, the Ohio. Portsmouth and Dover, in New Hampshire, are busily engaged in constructing roads to connect themselves with the interior; and with the lines already constructed by Boston. Newburyport is constructing a road to Lawrence. Salem has already has already accomplished a similar connection. On the south of Boston, Providence has connected itself with Worcester. New London and Norwich are pushing a connection with the Western Road at Palmer, for the purpose of diverting a portion of the western trade to themselves, and opening a direct outlet for their manufactures. Hartford and New Haven are attempting to enlarge the sphere of their influence and increase their business in the same manner. Every commercial town in New England has been driven by the necessity of self-preservation to the con-

struction of railroads. If profitable as dividend-paying roads, well; if not, the loss on the stock was the penalty they were compelled to pay maintain their position.

The reason for constructing this road simply on the grounds we have stated, have been admirably set forth in an address of Thos. Allen, Esq., submitted to the meeting of the corporators above referred to. As a matter of pure necessity, we contend that St. Louis must build the road proposed, to the west line of the State, with reference to its local trade and traffic alone.

The construction of a railroad to this extent, laying aside for the present the question of superiority of route, would exert a most powerful influence in favor of selecting it as a part of the main track of a road to the Pacific. It would turn the travel over that route, and give it the most conspicuous place in public attention. It would array a powerful interest to second any aid that Congress might extend to the work. It would greatly reduce the extent of line to be built by government. The building of a State road to the western line of Missouri would avoid all the scruples which would inevitably arise in reference to the right of the general Government to construct any portion of this road through the States. Above all, it would offer the best pledge that Congress could have, that the money granted by it in favor of this route would more probably secure the completion of the work as a whole, than if given to any scheme or route. The construction of the State road, therefore, would in all probability secure to St. Louis the ultimate terminus of the great railroad to the Pacific.

Subjoined we give such extracts as we have room to present from the address of Mr. Allen.

The question arising is, whether, under State authority and by our own means, it be expedient to commence the construction of a railroad from this city westwardly, with a view to the extension of such road ultimately to the western line of the State.

In considering this question, it is necessary to take into view our present situation, and our relations to the various railroad schemes projected in different parts of the country.

Geographically, we occupy a central position, and possess the great advantage of being at the convergence of several navigable water courses of magnificent extent, and incalculable value and importance. Nature has done much for us; and it is precisely because she has done so much, that we have not felt the necessity of doing anything for ourselves, while our neighbors, at the north and south of us, are making the greatest exertions to triumph over nature, and to obtain by art those advantages which nature denied them. At the same time, it is not to be denied that our relations to the navigable rivers constitute our chief natural advantages. The great majority of the emigrants, farmers of small means from the Eastern States, desiring to settle in the West, not willing to compete with slave labor, direct their steps to the north of us, while the emigrating planter, with his negroes, seeking a western home, turns his course, for the greater security of his slave property, to the south of us. Of the foreign emigration, our city has, it is true, received a very large share, and she has from that and other causes, chiefly commercial, prospered in an unexampled degree, while the interior of the State has also increased in population, but not with the same rapidity. For example, while St. Louis nearly doubled her population in four years, the counties bordering upon the Missouri river increased but about a third in the same time. But it is to be remembered that it is not alone with the interior of Missouri that St. Louis finds a profitable traffic. Divert the trade of the Upper Mississippi, and of the Illinois, from her, and the consequences would be felt to be of serious weight. Her commercial prosperity is founded very largely, if not chiefly, upon what is called the "produce trade." In this the productions of Illinois and Iowa, and even of Wisconsin, are extensively mingled with those of Missouri. In the past year, 1849, the number of steamboat arrivals from the upper Mississippi were 806—from the Illinois river they were 686, while from the Mis-



souri river they were but 355. The numerous barges, keels, flat and canal boats which arrive here, come chiefly from the upper Mississippi and the Illinois. It is evident, therefore, that St. Louis traffic is more with other States than with our own. To the great productive capabilities of the country north of us, the inhabitants apply superior industry and energy. Time, in developing their resources and increasing their wealth and population, has also brought to them the disposition and perhaps the means to increase their facilities of intercourse, and to extend the range of their market. Hence we see them devising schemes of railroads to connect them with the lakes, and with the great chain of railroads which are penetrating the West from the Atlantic cities. We see railroads projected from Chicago to Cairo, from Springfield to Quincy, from Springfield to Terre Haute, from Peoria to Oquawka, from Galena to Chicago, from Alton to Springfield, Illinois, and from St. Joseph to Hannibal, in our own State, the cost of survey in the case paid for by the State—all of them, but the first mentioned, commended to the public as probable links in the great chain which is to connect the Atlantic and Pacific. On the south of us we see projected and chartered the Missouri and White River Railroad and the Missouri and Mississippi River Railroad; railroads in Tennessee, reaching to the Mississippi, while our countrymen of the extreme south, aided and backed by the Topographical Corps of the United States, are urging forward a railroad, by the Gila route, to the Pacific at San Diego, which should have a terminus upon the Mississippi, below the mouth of the Ohio. While these movements are going on around us, St. Louis is doing nothing, and proposing to do nothing, but relying confidently upon the centrality of her position, her large capital and advanced growth, and her great "produce trade." Those who sought a friendly alliance with her in the east, and proposed to increase the facilities of intercourse by a railroad pointing directly to her, have been denied the right of way, and our neighboring city of Alton even prohibited the Springfield and Alton Railroad from touching the river bank, lest a long ferriage should give St. Louis the benefits which she hopes to appropriate exclusively to herself! What, then, with these schemes around us, against us, and avoiding us, is it, if any thing, expedient for us to do? Can we do any thing? Is it possible for us to devise a scheme which shall, by its tendency to increase the settlement of the interior of our State, to increase our own traffic, to introduce new and different sources of wealth, place our prosperity upon a broader and surer basis? Can we, by any process, put ourselves into a position which shall compel our enemies to inquire, not how they shall best avoid us, but how can they best get to us? which shall increase our own production, our own consumption, and invite new and lasting ties of commercial and social intercourse.

If, with the increase of trade and traders, the industrial arts and artisans be also multiplied, would not the mutual dependence of the two classes go far towards placing business upon a stable foundation? Suppose we were to cheapen and facilitate transportation, bring the raw materials cheaply and conveniently, to the hands of art, to be worked into infinite forms in our midst, give animation to business during the whole season, uninterrupted by winter, would not our market become more brisk and extensive, our means of supply increase; superior men be attracted and engaged in every department, and should we not be doing much to make St. Louis the manufactory and machine shop, as well as the emporium and metropolis of the Mississippi Valley? Nature has endowed States as well as individuals, with various gifts. Else commerce would not have existed. If another State excels us in agricultural resources, we perhaps excel her in our mineral resources. One State may produce cotton and sugar—we produce hemp and tobacco. Wheat may be the staple of one—corn and pork that of another. One people may excel another in a particular handicraft. But no one State can either produce everything or manufacture everything. But inasmuch as great diversity enters into the consumption of every people, commerce, by which they exchange the surplus of one kind of their productions, for another kind which they need, which forms part of the sur-

plus products of another people, becomes absolutely necessary. And just in proportion as we increase the diversity, the quality, the quantity, and the cheapness of our surplus productions, whether of the soil or of the factory, shall we invite, secure and extend our intercourse with other States and people.

What of these results, if any, should we obtain by a railroad to the West?

What lies to the west of us, within the reach of any railroad we might be able to construct? There are extensive beds of iron ore, of copper, of lead, and of bituminous and cannel coal, and doubtless undiscovered minerals of other kinds. There are fine forests of timber; there are fertile lands for tillage, and for grazing. There lies the route of the immense emigration to the great Plains, to the land of Deseret, and to California. There goes the trail of the Sante Fe trader, and the Fur and Indian trader. There go the Indian agencies and annuities, and government stores, munitions and troops. There, upon the borders of the Missouri river, lie the most populous counties in the State, embracing, at least, one-fourth of the whole people of the State. Here is St. Louis; there is Franklin, and Gasconade, and Calloway, and Osage, and Cole, and Cooper, and Howard, and Boone, and Lafayette, and Moniteau, and Saline, and Jackson, and Cass, and Ray, and Clay, and Platte, and Buchanan, containing in the aggregate, with Chariton and Carroll, not far from 250,000 people, and not less than 175,000 independently of St. Louis.

There, too, lies the Missouri river, turbid, dangerous, uncertain, full of snags and sandbars, and ever-changing channels, causing high insurance, costly transportation, and subject to many drawbacks and disappointments. Yet there the river runs, affording steam navigation for 2000 miles to the west of us, and bearing a commerce which has trebled in three years, and now requiring an average of one steamer per day for every day in the year. Doubtless, during the past extraordinary year not less than 40,000 persons have been passengers upon that river. But what may be regarded as the regular number of travellers I have no means of ascertaining. It may not, possibly, exceed 15,000. The number of tons brought out by the steamboats, omitting flats, rafts, and keels, estimating 355 arrivals here at an average of 200 tons the boat, would be 71,000 tons. Supposing them to carry the same up the river, and the total number of tons is 142,000; and we may add to the catalogue as lying yet to the west, the fertile territories of the Indians, the great plains, the new State of New Mexico, the mountains, the new States Deseret, and of California, and the Territory of Oregon?

Now then, in view of these people, and objects, and territories, and things unnumbered, and perhaps undiscovered, at the West, of what advantage would be a railroad in respect to them, and in respect to St. Louis?

The great modern historian of England has well said, that next to the alphabet, and the printing press, those inventions which abridge distance have done most for the civilization of mankind.—We may add, truly, that the railroad is the great apostle of progress. Though it has come into existence within the memory of most of us, and there be those among us who have never seen one, yet experience has demonstrated that it possesses magical powers to revolutionize commerce, to increase wealth and intercourse, to stimulate industry, and to develop and make available the resources of a country to the fullest extent. It has been proven to possess unequalled advantages for locomotion, and advantages which remunerate the cost. It has superceded the canal, and it is constructed without fear and without loss upon the banks of the most splendid water courses in competition with the perfection of steamboat navigation.

It carries out the city into the country; it brings the country and its abundance into the city. It equalizes the value of the products of labor, it gives new life to business, cheapens and expedites transportation, gives it certainty and punctuality, distributes the comforts of civilization, and makes travel a delight. What then would it do for us? Stimulating every species of industry in the vicinity of its route, it would in the immense increase of

production and travel, quadruple business. St. Louis, instead of being dull in the winter in consequence of closed navigation, would be live through all the season. The merchants would longer be subject to disappointment in sending forward their goods, the farmers and produce dealer in the interior would no longer be compelled to lose a season before realizing the value of their crops. The grazier would no longer be subject to loss in driving his stock to market, and the consumers and the packers would get better meat. Real estate in St. Louis generally would be greatly enhanced in value, as it would, likewise, along the entire route and within a day's journey of it, and in some places its value would be increased a thousand fold. New towns would spring up in the interior, and all the tillable lands along the route would be brought into cultivation. There would not be a farmer in any of the counties through which the road should be located, but would feel its benefits in the enhanced value of his property and productive industry of every kind. Transportation would be reduced to certainty and punctuality, the cost of insurance would be lessened, and the celerity of transit would be greatly increased. The aggregate wealth of the State would be much augmented, and its revenues and those of the counties upon the line of the road would from larger assessed values, experience proportionate improvement.

There is another view of the matter which seems to be as important as any we have taken. This is, as to the probable effect of such a State work, in determining the eastern termination, or beginning rather, of the great road to the Pacific, which is contemplated by the people and government of the United States. All know that there are numerous schemes afloat relative to the route and construction of that road; that several of these schemes are for a northern route, still more for a southern route, and but one or two perhaps for the central route, or that of the latitude of St. Louis. The executive department of the government, not committing itself to any scheme, contented itself with a recommendation of a survey, simply, of all the routes. It is quite possible that such a survey may be ordered by Congress. But if the Topographical Bureau should be authorized to make the survey, it will probably require some new light, some unexpected discovery of an unknown pass or some other powerful influence, to persuade it to report favorably upon any other route than that which follows the Gila along the borders of Mexico, passing at times, probably, into the Mexican territory, and connecting the lower Mississippi with the lower part of upper California. That report, however, must undergo the ordeal of Congress; and if it should appear that a route as favorable as any for the construction of the road, which shall admit of the saving of several hundred miles of distance and expense, is to be found, what but the most unjustifiable spirit of jealousy and selfishness could prevent its adoption. It is, however, by no means certain, amid the discontented spirits of Congress, that anything will be done in regard to the national project; or, if surveys are ordered, it will still be doubtful whether anything more would be done by the national authorities. The surveys themselves would occupy one or two, perhaps three or four years. To wait upon Congress until this lapse of time for the survey, and then still to wait upon Congress merely to discover whether they would make the road or not, would be to expose our own fate to be sealed, in the meantime, by the movements of State enterprizes around us. We should see the interests of the upper counties attaching themselves to the St. Joseph and Hannibal railroad, and arranging themselves in reference to it, like the lines formed by the grains of sand attracted by the loadstone. You might see the Illinois system, so far as it is opposed to St. Louis, completed, and perhaps some southern cross railroads striking the Mississippi near the mouth of the Ohio. Blocked up in front, cut off above and below, and a perfect state of torpidity in the rear, how could we expect to accomplish anything more, if we were even able to save ourselves from retrogression? In either view, therefore, of the national project, whether that be carried out or not, I can see no benefit to accrue to us by delay or "masterly inactivity," while I feel profoundly convinced that great good will ensue to us if we act promptly and efficiently for ourselves.



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struction of railroads. If profitable as dividend-paying roads, well; if not, the loss on the stock was the penalty they were compelled to pay maintain their position.

The reason for constructing this road simply on the grounds we have stated, have been admirably set forth in an address of Thos. Allen, Esq., submitted to the meeting of the corporators above referred to. As a matter of pure necessity, we contend that St. Louis must build the road proposed, to the west line of the State, with reference to its local trade and traffic alone.

The construction of a railroad to this extent, laying aside for the present the question of superiority of route, would exert a most powerful influence in favor of selecting it as a part of the main track of a road to the Pacific. It would turn the travel over that route, and give it the most conspicuous place in public attention. It would array a powerful interest to second any aid that Congress might extend to the work. It would greatly reduce the extent of line to be built by government. The building of a State road to the western line of Missouri would avoid all the scruples which would inevitably arise in reference to the right of the general Government to construct any portion of this road through the States. Above all, it would offer the best pledge that Congress could have, that the money granted by it in favor of this route would more probably secure the completion of the work as a whole, than if given to any scheme or route. The construction of the State road, therefore, would in all probability secure to St. Louis the ultimate terminus of the great railroad to the Pacific.

Subjoined we give such extracts as we have room to present from the address of Mr. Allen.

The question arising is, whether, under State authority and by our own means, it be expedient to commence the construction of a railroad from this city westwardly, with a view to the extension of such road ultimately to the western line of the State.

In considering this question, it is necessary to take into view our present situation, and our relations to the various railroad schemes projected in different parts of the country.

Geographically, we occupy a central position, and possess the great advantage of being at the convergence of several navigable water courses of magnificent extent, and incalculable value and importance. Nature has done much for us; and it is precisely because she has done so much, that we have not felt the necessity of doing anything for ourselves, while our neighbors, at the north and south of us, are making the greatest exertions to triumph over nature, and to obtain by art those advantages which nature denied them. At the same time, it is not to be denied that our relations to the navigable rivers constitute our chief natural advantages. The great majority of the emigrants, farmers of small means from the Eastern States, desiring to settle in the West, not willing to compete with slave labor, direct their steps to the north of us, while the emigrating planter, with his negroes, seeking a western home, turns his course, for the greater security of his slave property, to the south of us. Of the foreign emigration, our city has, it is true, received a very large share, and she has from that and other causes, chiefly commercial, prospered in an unexampled degree, while the interior of the State has also increased in population, but not with the same rapidity. For example, while St. Louis nearly doubled her population in four years, the counties bordering upon the Missouri river increased but about a third in the same time. But it is to be remembered that it is not alone with the interior of Missouri that St. Louis finds a profitable traffic. Divert the trade of the Upper Mississippi, and of the Illinois, from her, and the consequences would be felt to be of serious weight. Her commercial prosperity is founded very largely, if not chiefly, upon what is called the "produce trade." In this the productions of Illinois and Iowa, and even of Wisconsin, are extensively mingled with those of Missouri. In the past year, 1849, the number of steamboat arrivals from the upper Mississippi were 806—from the Illinois river they were 666, while from the Mis-



sour river they were but 355. The numerous barges, keels, flat and canal boats which arrive here, come chiefly from the upper Mississippi and the Illinois. It is evident, therefore, that St. Louis traffic is more with other States than with our own. To the great productive capabilities of the country north of us, the inhabitants apply superior industry and energy. Time, in developing their resources and increasing their wealth and population, has also brought to them the disposition and perhaps the means to increase their facilities of intercourse, and to extend the range of their market. Hence we see them devising schemes of railroads to connect them with the lakes, and with the great chain of railroads which are penetrating the West from the Atlantic cities. We see railroads projected from Chicago to Cairo, from Springfield to Quincy, from Springfield to Terre Haute, from Peoria to Oquawka, from Galena to Chicago, from Alton to Springfield, Illinois, and from St. Joseph to Hannibal, in our own State, the cost of survey in the case paid for by the State—all of them, but the first mentioned, commended to the public as probable links in the great chain which is to connect the Atlantic and Pacific. On the south of us we see projected and chartered the Missouri and White River Railroad and the Missouri and Mississippi River Railroad; railroads in Tennessee, reaching to the Mississippi, while our countrymen of the extreme south, aided and backed by the Topographical Corps of the United States, are urging forward a railroad, by the Gila route, to the Pacific at San Diego, which should have a terminus upon the Mississippi, below the mouth of the Ohio. While these movements are going on around us, St. Louis is doing nothing, and proposing to do nothing, but relying confidently upon the centrality of her position, her large capital and advanced growth, and her great "produce trade." Those who sought a friendly alliance with her in the east, and proposed to increase the facilities of intercourse by a railroad pointing directly to her, have been denied the right of way, and our neighboring city of Alton even prohibited the Springfield and Alton Railroad from touching the river bank, lest a long ferriage should give St. Louis the benefits which she hopes to appropriate exclusively to herself! What, then, with these schemes around us, against us, and avoiding us, is it, if any thing, expedient for us to do? Can we do any thing? Is it possible for us to devise a scheme which shall, by its tendency to increase the settlement of the interior of our State, to increase our own traffic, to introduce new and different sources of wealth, place our prosperity upon a broader and surer basis? Can we, by any process, put ourselves into a position which shall compel our enemies to inquire, not how they shall best avoid us, but how can they best get to us? which shall increase our own production, our own consumption, and invite new and lasting ties of commercial and social intercourse.

If, with the increase of trade and traders, the industrial arts and artisans be also multiplied, would not the mutual dependence of the two classes go far towards placing business upon a stable foundation? Suppose we were to cheapen and facilitate transportation, bring the raw materials cheaply and conveniently, to the hands of art, to be worked into infinite forms in our midst, give animation to business during the whole season, uninterrupted by winter, would not our market become more brisk and extensive, our means of supply increase; superior men be attracted and engaged in every department, and should we not be doing much to make St. Louis the manufactory and machine shop, as well as the emporium and metropolis of the Mississippi Valley? Nature has endowed States as well as individuals, with various gifts. Else commerce would not have existed. If another State excels us in agricultural resources, we perhaps excel her in our mineral resources. One State may produce cotton and sugar—we produce hemp and tobacco. Wheat may be the staple of one—corn and pork that of another. One people may excel another in a particular handicraft. But no one State can either produce everything or manufacture everything. But inasmuch as great diversity enters into the consumption of every people, commerce, by which they exchange the surplus of one kind of their productions, for another kind which they need, which forms part of the sur-

plus products of another people, becomes absolutely necessary. And just in proportion as we increase the diversity, the quality, the quantity, and the cheapness of our surplus productions, whether of the soil or of the factory, shall we invite, secure and extend our intercourse with other States and people.

What of these results, if any, should we obtain by a railroad to the West?

What lies to the west of us, within the reach of any railroad we might be able to construct? There are extensive beds of iron ore, of copper, of lead, and of bituminous and cannel coal, and doubtless undiscovered minerals of other kinds. There are fine forests of timber; there are fertile lands for tillage, and for grazing. There lies the route of the immense emigration to the great Plains, to the land of Deseret, and to California. There goes the trail of the Sante Fe trader, and the Fur and Indian trader. There go the Indian agencies and annuities, and government stores, munitions and troops. There, upon the borders of the Missouri river, lie the most populous counties in the State, embracing, at least, one-fourth of the whole people of the State. Here is St. Louis; there is Franklin, and Gasconade, and Calloway, and Osage, and Cole, and Cooper, and Howard, and Boone, and Lafayette, and Moniteau, and Saline, and Jackson, and Cass, and Ray, and Clay, and Platte, and Buchanan, containing in the aggregate, with Chariton and Carroll, not far from 250,000 people, and not less than 175,000 independently of St. Louis.

There, too, lies the Missouri river, turbid, dangerous, uncertain, full of snags and sandbars, and ever-changing channels, causing high insurance, costly transportation, and subject to many drawbacks and disappointments. Yet there the river runs, affording steam navigation for 2000 miles to the west of us, and bearing a commerce which has trebled in three years, and now requiring an average of one steamer per day for every day in the year. Doubtless, during the past extraordinary year not less than 40,000 persons have been passengers upon that river. But what may be regarded as the regular number of travellers I have no means of ascertaining. It may not, possibly, exceed 15,000. The number of tons brought out by the steamboats, omitting flats, rafts, and keels, estimating 355 arrivals here at an average of 200 tons the boat, would be 71,000 tons. Supposing them to carry the same up the river, and the total number of tons is 142,000; and we may add to the catalogue as lying yet to the west, the fertile territories of the Indians, the great plains, the new State of New Mexico, the mountains, the new States Deseret, and of California, and the Territory of Oregon?

Now then, in view of these people, and objects, and territories, and things unnumbered, and perhaps undiscovered, at the West, of what advantage would be a railroad in respect to them, and in respect to St. Louis?

The great modern historian of England has well said, that next to the alphabet, and the printing press, those inventions which abridge distance have done most for the civilization of mankind.—We may add, truly, that the railroad is the great apostle of progress. Though it has come into existence within the memory of most of us, and there be those among us who have never seen one, yet experience has demonstrated that it possesses magical powers to revolutionize commerce, to increase wealth and intercourse, to stimulate industry, and to develop and make available the resources of a country to the fullest extent. It has been proven to possess unequalled advantages for locomotion, and advantages which remunerate the cost. It has superseded the canal, and it is constructed without fear and without loss upon the banks of the most splendid water courses in competition with the perfection of steamboat navigation.

It carries out the city into the country; it brings the country and its abundance into the city. It equalizes the value of the products of labor, it gives new life to business, cheapens and expedites transportation, gives it certainty and punctuality, distributes the comforts of civilization, and makes travel a delight. What then would it do for us? Stimulating every species of industry in the vicinity of its route, it would in the immense increase of

production and travel, quadruple business. St. Louis, instead of being dull in the winter in consequence of closed navigation, would be lively through all the season. The merchants would no longer be subject to disappointment in sending forward their goods, the farmers and produce dealers in the interior would no longer be compelled to lose a season before realizing the value of their crops. The grazier would no longer be subject to loss in driving his stock to market, and the consumers and the packers would get better meat. Real estate in St. Louis generally would be greatly enhanced in value, as it would, likewise, along the entire route, and within a day's journey of it, and in some places its value would be increased a thousand fold. New towns would spring up in the interior, and all the tillable lands along the route would be brought into cultivation. There would not be a farmer in any of the counties through which the road should be located, but would feel its benefits in the enhanced value of his property and productive industry of every kind. Transportation would be reduced to certainty and punctuality, the cost of insurance would be lessened, and the celerity of transit would be greatly increased. The aggregate wealth of the State would be much augmented, and its revenues and those of the counties upon the line of the road would from larger assessed values, experience proportionate improvement.

There is another view of the matter which seems to be as important as any we have taken. This is, as to the probable effect of such a State work, in determining the eastern termination, or beginning rather, of the great road to the Pacific, which is contemplated by the people and government of the United States. All know that there are numerous schemes afloat relative to the route and construction of that road; that several of these schemes are for a northern route, still more for a southern route, and but one or two perhaps for the Central route, or that of the latitude of St. Louis. The executive department of the government, not committing itself to any scheme, contented itself with a recommendation of a survey, simply, of all the routes. It is quite possible that such a survey may be ordered by Congress. But if the Topographical Bureau should be authorized to make the survey, it will probably require some new light, some unexpected discovery of an unknown pass or some other powerful influence, to persuade it to report favorably upon any other route than that which follows the Gila along the borders of Mexico, passing at times, probably, into the Mexican territory, and connecting the lower Mississippi with the lower part of upper California. That report, however, must undergo the ordeal of Congress; and if it should appear that a route as favorable as any for the construction of the road, which shall admit of the saving of several hundred miles of distance and expense, is to be found, what but the most unjustifiable spirit of jealousy and selfishness could prevent its adoption. It is, however, by no means certain, amid the discontented spirits of Congress, that anything will be done in regard to the national project; or, if surveys are ordered, it will still be doubtful whether anything more would be done by the national authorities. The surveys themselves would occupy one or two, perhaps three or four years. To wait upon Congress until this lapse of time for the survey, and then still to wait upon Congress merely to discover whether they would make the road or not, would be to expose our own fate to be sealed, in the meantime, by the movements of State enterprizes around us. We should see the interests of the upper counties attaching themselves to the St. Joseph and Hannibal railroad, and arranging themselves in reference to it, like the lines formed by the grains of sand attracted by the lead stone. You might see the Illinois system, so far as it is opposed to St. Louis, completed, and perhaps some southern cross railroads striking the Mississippi near the mouth of the Ohio. Blocked up in front, cut off above and below, and a perfect state of torpidity in the rear, how could we expect to accomplish anything more, if we were even able to save ourselves from retrogression? In either view, therefore, of the national project, whether that be carried out or not, I can see no benefit to accrue to us by delay or "masterly inactivity," while I feel profoundly convinced that great good will ensue to us if we act promptly and efficiently for ourselves.



**COLUMBUS, OHIO,**  
**Railroad Car Manufactory.**  
**RIDGWAYS & KIMBALL,**  
 HAVE established at this central point, the manu-  
 facture of Passenger, Freight, Gravel and Hand  
 cars for Railroads, and assure all Western Railroad  
 Companies that it will be their constant aim to pro-  
 duce the best materials and workmen, and to turn out  
 the best kind of work at fair prices. Specimens may  
 be seen on the Columbus and Xenia Railroad. The  
 patronage of Railroad Companies is respectfully solic-  
 ited. ly8

**Ogden & Martin's**  
**ROSENDALE CEMENT.**  
 WE are prepared to enter into arrangements for  
 supplying our Cement for public works or other  
 purposes. We warrant the cement equal in every re-  
 spect to any manufactured in this country. It attains  
 a great degree of hardness, sets immediately under  
 water, and is a superior article for masonry coming in  
 contact with water, or requiring great strength.  
 For sale in tight barrels, well papered, at their office  
 by **OGDEN & MARTIN, 104 Wall st.**  
 February 16, 1850. ly\*

**Railroad Iron Wanted.**  
 VIRGINIA AND TENNESSEE R.R. OFFICE, }  
 Lynchburg, January 25, 1850. }  
**PROPOSALS** will be received at this office, until  
 the 1st of March next, for the delivery in Lynch-  
 burg, of iron rails for the Virginia and Tennessee Rail-  
 road, to be manufactured in or near this town, of Vir-  
 ginia Iron.

The said iron to be made of the best pig metal, and  
 to be delivered at the following times and in the fol-  
 lowing quantities, viz: six thousand tons in the year  
 1851, and the remainder (about 15,000 tons) for the  
 whole road, equally in the years 1852 and 1853.

Separate proposals will also be received for the de-  
 livery in Lynchburg, of pig metal, at times and in  
 quantities sufficient for the manufacture of the rails  
 above mentioned, said delivery to commence as early  
 as the 1st of November, 1850.

The rails and pig metal will be subjected to strict in-  
 spection—the rails are to weigh about 60 lbs per yard.

At the same time proposals will be received for the  
 above quantity of iron, manufactured any where else  
 in America, or in England, to be delivered in Lynch-  
 burg or Richmond, under the same general conditions  
 as those prescribed for Virginia Iron, manufactured at  
 Lynchburg. Satisfactory security will be required.

By order of the Board of Directors.

**CHAS. F. M. GARNETT,**  
 Chief Engineer.

### NOTICE TO Superintendents of Railroads.

**TYLER'S PATENT SAFETY SWITCH.**—The  
 undersigned would respectfully call their attention  
 to his Patent Safety Switch, which from long trial and  
 late severe tests has proved itself perfectly reliable for  
 the purpose for which it was intended. It is de-  
 signed to prevent the train from running off when the  
 switch is set to the wrong track by design or accident.  
 The single rail or gate switch is established as the best  
 and safest switch for the ordinary purpose of shifting  
 cars from one track to another, but it is liable to the  
 serious evil of having one track open or broken when  
 connected with the other. My improvement entirely  
 removes this evil, and while it accomplishes this im-  
 portant office, leaves the switch in its original simpli-  
 city and perfection of a plain unbroken rail, connect-  
 ing one track with the other ready for use.

The following decision of the Commissioner of Pa-  
 tents is respectfully submitted to Railroad Engineers,  
 Superintendents, and all others interested in the sub-  
 ject. P. R. TYLER.

(COPY.)

**UNITED STATES PATENT OFFICE,**  
 Washington City, D.C., April 23th, 1846.  
**SIR:** You are hereby informed that in the case of the  
 interference between your claims and those of Gusta-  
 vus A. Nicolls, for improvements in safety switches—  
 upon which a hearing was appointed to take place on  
 the 3d Monday in March, 1846, the question of priority  
 of invention has been decided in your favor. Inclosed  
 is a copy of the decision. The testimony in the case  
 is now open to the inspection of those concerned.

Yours respectfully, **EDMUND BURKE,**  
 Commissioner of Patents.

To Philip B. Tyler.

Any further information may be obtained by address-  
 ing **P. R. TYLER, Springfield, Mass.,** or **JOHN**  
**PENDLETON, Agent, 149 Hudson St., New York.**

**3,000 Tons Railroad Iron.**  
**THE UNDERSIGNED IS PREPARED TO**  
 contract for the delivery of the above quantity at  
 any port of the United States. Can be made of any  
 required pattern and of a favorite brand.  
**CHARLES ILLIUS,**  
 20 Beaver St., New York.  
 1m3

**Brown's Old Established**  
**SCALE WARE HOUSE,**  
 NO. 234 WATER ST., NEW YORK.

**THE** Subscriber, Practical Manufacturer of Scales  
 of every description, respectfully asks the atten-  
 tion of Railroad Companies to his Improved Wrought  
 Iron Railroad Track and Depot Scales which for  
 strength, durability, accuracy, convenience in weigh-  
 ing, and beauty of workmanship, are not surpassed by  
 any others in this country.

He is aware that this is rather a bold assertion for  
 him to make, yet he can say with confidence that they  
 have but to be tried to give them precedence over all  
 others. **J. L. BROWN.**

Bank Scales made to order, and all Scales of  
 his make Warranted in every particular.  
 References given if required. 4tf

### **BALL & CO'S PATENT** **Indestructible Water Pipe.**

We publish below the opinions of others who have  
 a personal knowledge of our Pipe, and would request  
 all persons interested in the conveyance of water to  
 investigate its merits for themselves. It being cheap-  
 er than Cast iron pipes, and incomparably more dura-  
 ble (as there is no chance to commence decay but con-  
 tinually grows more permanent) it must supersede it  
 altogether in works requiring durability and purity.—  
 Branching, tapping, altering or relaying, is done with  
 the greatest facility, and certainty, without injury, in  
 any size of bore from 3 feet diameter down to 1/4th of  
 an inch under any head that can be controlled with  
 hose or service pipes. **J. BALL & CO.**  
 Corner of Read and Centre Sts., N. Y.

**FOR** the benefit of those who have requested infor-  
 mation in regard to this excellent article, we in-  
 sert the following testimonials in relation to its merits:

"In answer to the numerous inquiries in relation to  
 J. Ball & Co's Indestructible Water pipe, composed of  
 iron and cement and in use in our village, the under-  
 signed, water commissioners, trustees, and late trust-  
 ees of the village of Saratoga Springs, take this meth-  
 od of saying that we have perfect confidence in the  
 utility, goodness and durability of said pipe. The vil-  
 lage of Saratoga Springs has some 20,000 feet of this  
 pipe, varying from 6; to 14 in. in diameter, under a  
 head of about 80 feet. It has been laid since the fall  
 of 1846. Since it was fully completed, it has cost com-  
 paratively nothing to keep it in repair; and, although  
 some portions are exposed to the frost, it seems to stand  
 well the test, and answer all the purposes for which it  
 was designed and constructed. We believe it prefer-  
 able to iron pipe—is much cheaper and more durable,  
 and we would not exchange it for any other kind of  
 pipe yet invented, if we could without any additional  
 expense or inconvenience. The water comes through  
 clear and pure, and where we have had occasion to take  
 any part of it up to improve or alter the grounds, it ap-  
 peared to be just as sound and imperishable as the mo-  
 ment it was laid down. This testimony is entirely  
 disinterested, and is now given to avoid the necessity  
 of answering the many calls upon us for information  
 on this subject. We have witnessed and many of us  
 have superintended the laying down of the pipe in this  
 village, and watched its operations since, and are per-  
 fectly satisfied that we have the best water pipe ever  
 presented to the public. Saratoga Springs, Dec., '49.

G. M. Davidson,	Water Com.
R. Putnam,	
N. B. Doe,	Trustees.
R. Gardner,	
H. P. Hyde,	Late Trustees.
J. L. Perry,	
J. D. Briggs,	
S. Chapman,	
J. A. Corey,	
W. S. Alger,	
Wm. Cook,	

"I certify that I was Chief Engineer, having the con-  
 struction of the above work in charge, and fully con-  
 cur in the foregoing statement. Dec., 1849.

"S. R. OSTRANDER, Civil Engineer."

A card, signed by the Trustees or Water Commis-  
 sioners of Saratoga Spa (village), expressing their un-  
 qualified approval of J. Ball & Co's Indestructible wa-  
 ter pipe, has been shown me; whilst I fully endorse  
 from my own experience, the statements of these gen-

lemen, I am enabled to add that under my direction,  
 some six thousand feet of cement pipe was laid by  
 Messrs. Ball & Co., in this village, that the main pipe  
 was of 10, 4 and 6 inches bore, and is subjected to a  
 pressure due to an average head of sixty-five feet—it  
 has fully answered my expectations. I would further  
 state that, having been employed by the Common  
 Council of Albany to report a plan of supplying that  
 city with water, I had occasion very carefully to test  
 the merits of this kind of pipe, and was so fully con-  
 vinced of the practicability of using the cement pipe  
 for large conduits, being of three feet in diameter, as  
 well as for smaller ones, that I recommended its adop-  
 tion in the proposed work, and give my reasons for so  
 doing.

1st. That the cement pipe is far less expensive than  
 that of cast iron or brick.

2d. That it will sustain an equal pressure with that  
 of cast iron; and when used for large conduits, can be  
 carried up and down the inequalities of the surface of  
 the ground, saving the grading, which is indispensable  
 if a brick one is used.

3d. That it can be readily and economically repaired,  
 and, should it become necessary, can be taken up and  
 relaid without injuring the pipe.

4th. That this description of pipe is not so much af-  
 fected by frost as one of metal, and in no way impairs  
 the quality of the water. **F. S. CLAXTON,**  
 Engineer and Ag't Cohoes Co.

Messrs. J. Ball & Co., New York.  
 Cohoes, December 31, 1849.

In addition to the above testimonials, we can state  
 that, having had experience and personal knowledge  
 in regard to the excellent qualities and durability of the  
 above pipe, we have no hesitation in recommending it  
 to the public.

Starr & Alburts, 122 Nassau st.  
 Frederick Marquand, per H. G. M., Atty.  
 Janes, Beebe & Co.  
 H. W. Metcalf, 63 and 65 Centre st.  
 Norman White, 111 Fulton st.  
 John J. Merritt, No. 76 Columbia st. Brooklyn.  
 Platt & Brother, 20 Maiden Lane.  
 Geo. Griswold, South st.  
 J. & J. W. Meeks, 14, 16 and 18 Vesey st.  
 Wm. Gale, 116 Fulton st.  
 J. C. Brown, Builder, 10 Dutch st.  
 Wm. Colgate & Co.  
 Thos. C. Smith.  
 O. R. Burnham, 17 and 19 Broadway.  
 G. B. Hartson, 58 and 60 Vesey st.  
 Wm. W. Campbell, 77 St. Mark's Place.  
 Lorin Brooks, 240 Broadway.

Messrs. J. Ball & Co.:  
 Gents: Articles have appeared in the Farmer and  
 Mechanic, from Saratoga and Cohoes, on the subject  
 of your water pipes; I fully endorse their opinions.  
 Your work for my son's water cure at South Orange,  
 embracing a large amount of four and three inch pipe,  
 under a head at least as great as the Croton of New  
 York, shows not only certainty and efficiency, but  
 what is equally important, perfect purity, which for  
 medical purposes is all important, and should be con-  
 sidered so for drinking and other uses.

Yours, **SAML. MEEKER.**

Newark, January 11, 1850.  
 In addition to the above, we certify that J. Ball &  
 Co. have inserted pipes for us of 10 inch bore and less,  
 since the winter of 1844, and that last Spring we had  
 over 1000 lbs. of lead pipe removed, and its place sup-  
 plied with their pipe. We fully endorse the opinions  
 expressed in the notices above.

**BEACH, BROTHERS,**  
 New York Sun Establishment.

Having for the past three years laid many of Messrs.  
 J. Ball & Co's patent cement pipes in the Newark  
 Aqueduct Co., I prefer them to any pipe that I have  
 used, their cost being one-third less than iron pipe,  
 and also being free from wear and rust, and can most  
 cordially recommend them for all aqueduct purposes.  
**SHELDON SMITH, Superintendent.**

Newark, January 14, 1850.

**THE NEWCASTLE MANUFACTURING Co.**  
 continue to furnish at the Works, situated in the  
 town of Newcastle, Del., Locomotive and other steam  
 engines, Jack Screws, Wrought Iron Work and Brass  
 and Iron Castings, of all kinds connected with Steam-  
 boats, Railroads, etc.; Mill Gearing of every descrip-  
 tion; Cast Wheels (chilled) of any pattern and size,  
 with Axles fitted, also with wrought tires, Springs,  
 Boxes and bolts for Cars; Driving and other wheels  
 for Locomotives.

The works being on an extensive scale, all orders  
 will be executed with promptness and despatch. Com-  
 munications addressed to Mr. William H. Dobbs, Su-  
 perintendent, will meet with immediate attention.

**ANDREW C. GRAY,**

President of the Newcastle Manuf. Co.



**Great American Mechanical Work.**

PUBLISHING MONTHLY BY SUBSCRIPTION SPECIMENS OF THE

**STONE, IRON, AND WOOD BRIDGES, VIADUCTS, TUNNELS, CULVERTS, &c., of the United States Railroads.** Illustrated by a Series of Drawings from actual measurement of the works, including Plans, Elevations, Sections and details of each Structure, accompanied by remarks on the relative merits of the various forms of construction adopted, as regards economy, strength and durability, with Specifications, Estimates, Bills of Timber, Iron, etc., of the several structures; and an APPENDIX, illustrative of the art of Bridge Building as at present practiced in Europe; and numerous original Designs for Bridges, Viaducts, Culverts, etc.; the whole calculated to meet the exigencies of Engineers, and assist Draftsmen, Bridge Builders, Mechanics and Students.

BY GEORGE DUGGAN,  
ARCHITECT AND CIVIL ENGINEER.

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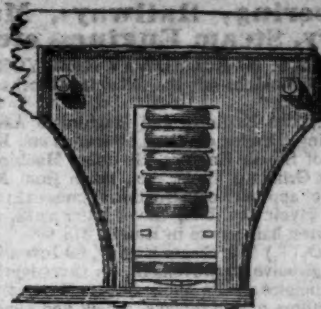
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1m46

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3m37

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August 16, 1849.**Railroad Iron.**THE MOUNT SAVAGE IRON WORKS, AL-  
legany county, Maryland, having recently pas-  
sed into the hands of new proprietors, are now prepar-  
ed, with increased facilities, to execute orders for any  
of the various patterns of Railroad Iron. Communi-  
cations addressed to either of the subscribers will have  
prompt attention. J. F. WINSLOW, President

Troy, N.Y.

**ERASTUS CORNING, Albany****WARREN DELANO, Jr., N.Y.****JOHN M. FORBES, Boston.****ENOCH PRATT, Baltimore, Md.**

November 6, 1849.

**Railroad Iron.**THE SUBSCRIBERS ARE PREPARED TO  
take orders for Railroad Iron to be made at their  
Phoenix Iron Works, situated on the Schuylkill Riv-  
er, near this city, and at their Safe Harbor Iron Works,  
situated in Lancaster County, on the Susquehanna  
river; which two establishments are now turning out  
upwards of 1800 tons of finished rails per month.  
Companies desirous of contracting will be promptly  
supplied with rails of any required pattern, and of the  
very best quality.**REEVES, BUCK & CO.,**

45 North Water St., Philadelphia,

March 15, 1849.



**Monument Foundry.**

**A. & W. DENMEAD & SON,**  
Corner of North and Monument Sts.,—Baltimore,  
HAVING THEIR

**IRON FOUNDRY AND MACHINE SHOP**

In complete operation, are prepared to execute faithfully and promptly, orders for  
Locomotive or Stationary Steam Engines,  
Woolen, Cotton, Flour, Rice, Sugar Grist, or Saw Mills,  
Slide, Hand or Chuck Lathes,  
Machinery for cutting all kinds of Gearing.  
Hydraulic, Tobacco and other Presses,  
Car and Locomotive patent Ring Wheels, warranted,  
Bridge and Mill Castings of every description,  
Gas and Water Pipes of all sizes, warranted,  
Railroad Wheels with best faggotted axle, furnished and fitted up for use, complete  
Being provided with Heavy Lathes for Boring and Turning Screws, Cylinders, etc., we can furnish them of any pitch, length or pattern.  
Old Machinery Renewed or Repaired—and Estimates for Work in any part of the United States furnished at short notice.  
June 8, 1849.

**Iron Wire.**

**REFINED IRON WIRE OF ALL KINDS,**  
Card, Reed, Cotton-flyer, Annealed, Broom, Buckle, and Spring Wire. Also all kinds of Round, Flat or Oval Wire, best adapted to various machine purposes, annealed and tempered, straightened and cut any length, manufactured and sold by  
**ICHABOD WASHBURN.**  
Worcester, Mass., May 25, 1849.

**American and Foreign Iron.**

**FOR SALE,**  
300 Tons A 1, Iron Dale Foundry Iron.  
100 " 1, " " " "  
100 " 2, " " " "  
100 " " Forge " "  
400 " Wilkesbarre " "  
100 " " Roaring Run" Foundry Iron.  
300 " Fort " " "  
50 " Catocin " " "  
250 " Chikiswalungo " " "  
50 " "Columbia" "chilling" iron, a very superior article for car wheels.  
75 " "Columbia" refined boiler blooms.  
30 " 1 x 1/2 Slit iron.  
50 " Best Penna. boiler iron.  
50 " "Puddled" " "  
50 " Bagnall & Sons refined bar iron.  
50 " Common bar iron.

Locomotive and other boiler iron furnished to order.  
**GOODHUE & CO.,**  
New York. 64 South street

**American Pig, Bloom and Boiler Iron.**

**HENRY THOMPSON & SON,**  
No 57 South Gay St., Baltimore, Md.,  
Offer for sale. Hot Blast Charcoal Pig Iron made at the Catocin (Maryland), and Taylor (Virginia), Furnaces; Cold Blast Charcoal Pig Iron from the Cloverdale and Catauba, Va., Furnaces, suitable for Wheels or Machinery requiring extra strength; also Boiler and Flue Iron from the mills of Edge & Hilles in Delaware, and best quality Boiler Blooms made from Cold Blast Pig Iron at the Shenandoah Works, Va. The productions of the above establishments can always be had at the lowest market price, for approved paper.  
American Pig Iron of other brands, and Rolled and Hammered Bar Iron furnished at lowest prices. Agents for Watson's Perth Amboy Fire Bricks, and Rich & Cos. New York Salamander Iron Chests, Baltimore, June 14, 1849. 6 mos

**LAP-WELDED WROUGHT IRON TUBES**  
for Tubular Boilers, from 1 1/2 to 15 inches diameter, and any length not exceeding 17 feet—manufactured by the Caledonian Tube Company, Glasgow, and for sale by  
**IRVING VAN WART,**  
12 Platt street, New York.

**JOB CUTLER, Patentee.**

These Tubes are extensively used by the British Government, and by the principal Engineers and Steam Marine and Railway Companies in the Kingdom.

**Railroad Iron.**

**THE TRENTON IRON COMPANY ARE NOW** turning out one thousand tons of rails per month, at their works at Trenton, N. J. They are prepared to enter into contract to furnish rails of any pattern, and of the very best quality, made exclusively from the famous Andover iron. The position of the works on the Delaware river, the Delaware and Raritan canal, and the Camden and Amboy railroad, enables them to ship rails at all seasons of the year. Apply to  
**COOPER & HEWITT, Agents.**  
October 30, 1848. 17 Burling Slip, New York.

**Pig and Bloom Iron.**

**THE SUBSCRIBERS ARE AGENTS FOR THE SALE OF NUMEROUS BRANDS OF CHARCOAL AND ANTHRACITE PIG IRON,** suitable for Machinery, Railroad Wheels, Chains, Hollowware, etc. Also several brands of the best Puddling Iron, Juniata Blooms suitable for Wire, Boiler Plate, Axe Iron, Shovels, etc. The attention of those engaged in the manufacture of Iron is solicited by  
**A. WRIGHT & NEPHEW,**  
Vine Street Wharf, Philadelphia.

**Iron.**

**THE SUBSCRIBERS HAVING RESUMED THE AGENCY** of the New-Jersey Iron Company, are prepared to execute orders for the different kinds and sizes of Iron usually made at the works of the company, and offer for sale on advantageous terms.—  
150 tons No. 1 Boonton Foundry Pig Iron.  
100 " No. 2 do. do. do.  
300 " Nos. 2 & 3 Forge do. do.  
100 " No. 2 Glendon do. do.  
140 " Nos. 2 & 3 Lehigh Crane do. do.  
100 " No. 1 Pompton Charcoal do. do.  
100 " New-Jersey Blooms  
50 " New-Jersey Faggotted Iron, for shafts  
Best Bars, 1/2 to 4 inch by 1/2 to 1 inch thick.  
Do do Rounds and Squares, 1/2 to 3 inch.  
Rounds and Squares, 3-16 to 1 inch.  
Half Rounds, 1/2 to 1 in. Ovals & Half Ovals 1/2 to 1 1/2 in.  
Bands, 1 1/2 to 4 inch. Hoops, 1/2 to 2 inch.  
Trunk Hoops, 1/2 to 1 1/2 in. Horse Shoes & Nut Iron.  
Nail Plates. Railroad Spikes.  
**DUDLEY B. FULLER & Co.,** 139 Greenwich-st. and 85 Broad-st.

**WILLIAM JESSOP & SONS' CELEBRATED CAST-STEEL.**

The subscribers have on hand, and are constantly receiving from their manufactory,  
**PARK WORKS, SHEFFIELD,**  
Double Refined Cast Steel—square, flat and octagon.  
Best warranted Cast Steel—square, flat and octagon.  
Best double and single Shear Steel—warranted.  
Machinery Steel—round.  
Best and 2d gy. Sheet Steel—for saws and other purposes.  
German Steel—flat and square, "W. I. & S." "Eagle" and "Goat" stamps.  
Genuine "Sykes" L Blister Steel.  
Best English Blister Steel, etc., etc., etc.  
All of which are offered for sale on the most favorable terms by  
**WM. JESSOP & SONS,**  
91 John street, New York.  
Also by their Agents—  
Curtis & Hand, 47 Commerce street, Philadelphia.  
Alex'r Fullerton & Co., 119 Milk street, Boston.  
Stickney & Beatty, South Charles street, Baltimore.  
May 6, 1849.

**SPRING STEEL FOR LOCOMOTIVES, TENDERS AND CARS.**—The subscriber is engaged in manufacturing spring steel from 1 1/2 to 6 inches in width, and of any thickness required: large quantities are yearly furnished for railroad purposes, and wherever used its quality has been approved of. The establishment being large, can execute orders with great promptitude, at reasonable prices, and the quality warranted. Address **J. F. WINSLOW, Agent,** Albany Iron and Nail Works.

**JOHNSON, CAMMELL & Co's Celebrated Cast Steel,**

**AND ENGINEERING AND MACHINE FILES,** which for quality and adaptation to mechanical uses, have been proved superior to any in the United States. Every description of square, octagon, flat and round cast steel, sheet, shovel and railway spring steel, best double and single shear steel, German steel, flat and square, goat stamps, etc. Saw and file steel, and steel to order for any purposes, manufactured at their Cyclops Steel Works Sheffield.

**JOHNSON, CAMMELL & CO.,**  
100 William St., New York.

November 23 1843.

**American Cast Steel.**

**THE ADIRONDAC STEEL MANUFACTURING CO.** is now producing, from American iron, at their works at Jersey City, N. J., Cast Steel of extraordinary quality, and is prepared to supply orders for the same at prices below that of the imported article of like quality. Consumers will find it to their interest to give this a trial. Orders for all sizes of hammered cast steel, directed as above, will meet with prompt attention.  
May 28, 1849.

**To Steam Engine Builders.**

**THE Undersigned offer for sale, at less than half its cost, the following new machinery,** calculated for an engine of 62 inches cylinder and 10 feet stroke, viz:  
2 Wrought Iron Cranks, 60 inches from centre to centre.  
1 Do. do. Connecting Rod Strap.  
2 Do. do. Crank Pins.  
1 Eccentric Strap.  
1 Diagonal Link with Brasses.  
1 Cast Iron Lever Beam (forked).  
The above machinery was made at the West Point Foundry for the U. S. Steamer Missouri, without regard to expense, is all finished complete for putting together, and has never been used. Drawings of the cranks can be seen on application to  
**HENRY THOMPSON & SON,**  
No. 57 South Gay St., Baltimore, Md.  
Sept. 12, 1849.

**Railroad Instruments.**

**THEODOLITES, TRANSIT COMPASSES,** and Levels, with Fraunhoffer's Munich Glasses, Surveyor's Compasses, Chains, Drawing Instruments, Barometers, etc., all of the best quality and workmanship, for sale at unusually low prices, by  
**E. & G. W. BLUNT,**  
No. 179 Water St., cor. Burling Slip.  
New York, May 19, 1849.

**Ballard's Improved JACK-SCREW.**

PATENTED.

**THE ADVANTAGES OF THIS** Screw for Stone Quarries, Railroads, Steam Boiler Builders, and for other purposes are superior to any other similar machine. The improvement consists in being able to use either end of the screw, as occasion requires. It is capable of raising the heaviest Locomotive with ease, being portable, strong and powerful, and not likely to get out of order. Many Railroad Companies and Boiler Makers have them in use by whom they are highly recommended.

**JACK SCREWS,** of various sizes, power and price, constantly on hand at the manufactory.

No. 7 Eldridge Street,  
near Division Street.  
New York, Jan. 19, 1850.

**To Railroad Companies and Contractors.**

**FOR SALE.**—Two Locomotive Engines and Tenders, at present in use on the Beaver Meadow Railroad, being too light for their coal trains, but well calculated for either gravel or light passenger trains. They weigh, in running order, about 8 tons each—having one pair of driving wheels 4 feet diameter, 4 truck wheels 30 inches diameter, with cylinders 10 in. diameter, and 18 inches stroke of piston. Tenders on 4 wheels. Address **JAMES ROWLAND,** Prest. Beaver Meadow Railroad & Coal Co., Philadelphia.  
or, **L. CHAMBERLAIN, Sec'y,** at Beaver Meadow, Pa.  
May 19, 1849.

**To Inventors and Patentees.**

**OWEN G. WARREN, ARCHITECT,** Has had many years' experience as Agent for obtaining Patents, both in this country and Europe, and will transact such business promptly and reasonably. Persons at a distance can have their business done by correspondence—without the necessity of visiting this city or Washington. Office No. 24 Merchants Exchange, Wall st., corner of Hanover st., up stairs. 173





### To Railroad Companies.

**FOR SALE**—A Second-hand Locomotive Engine and Tender, of about 10 tons weight, in good order, and warranted to perform well. Any company wanting a cheap engine for a passenger or light burden train, will rarely meet with an opportunity so favorable as the present. The engine and tender are in perfect running order, and will be tested to the satisfaction of any one wishing to purchase. Price \$1,500.

Address **J. B. MOORHEAD,**  
Frazer P.O., Chester county, Pa.

P.S.—The Engine can be seen by calling on H. Osmond & Co., Car-builders, Broad st., Philadelphia.  
September 6, 1849.

### India-rubber for Railroad Cos.

**RUBBER SPRINGS**—Bearing and Buffer—Fuller's Patent—Hose from 1 to 12 inches diameter. Suction Hose. Steam Packing—from 1-16 to 2 in. thick. Rubber and Gutta Percha Bands. These articles are all warranted to give satisfaction, made under Tyer & Helm's patent, issued January, 1849.—No lead used in the composition. Will stand much higher heat than that called "Goodyear's," and is in all respects better than any in use. Proprietors of railroads do not be overcharged by pretenders.

**HORACE H. DAY,**  
Warehouse 23 Courtlandt street.  
New York, May 21, 1849.

### Fire Brick.

**THE** Subscribers have constantly on hand Rafford's Stourbridge, Oak Farms Stourbridge, Lister, Wortley, Red and White Welsh Fire Bricks, common and fancy shapes.

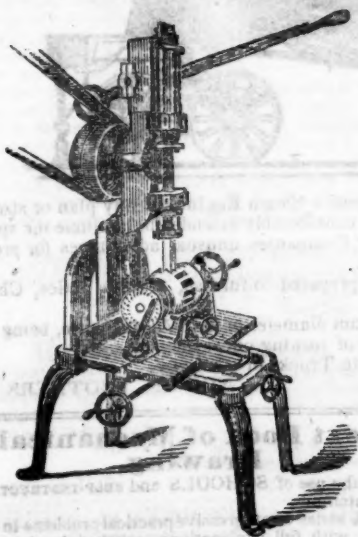
Also, **ROOFING SLATES,**  
from the best Welch quarries, and of all sizes. Also, **COAL,**

of all kinds—Liverpool Orrell and Cannel, Scotch, New Castle, Pictou, Sidney, Cumberland, Virginia, and all kinds of Anthracite coals. Also,

Pig Iron, Salt, etc., etc., for sale at the lowest market price. Apply to

**SAMUEL THOMPSON & NEPHEW,**  
275 Pearl and 43 Gold Sts., New York.  
November, 23, 1849.

### Capt. Alfred Swingle's PATENT BORING & MORTISING MACHINE.



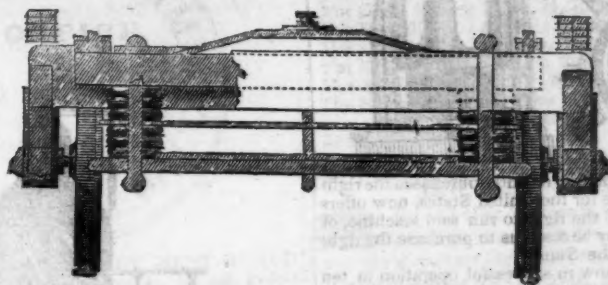
The above Machine was invented by A. SWINGLE, of Texas, in 1846, and Letters Patent were taken out in July, 1848. As a labor saving Machine it stands unrivalled even in these days of improvements. Its uses are innumerable; it may be successfully applied to Doors, Sashes, Carriages, Wheel-Hubs, and in fact to all kinds of work where the Auger and Chisel can be brought to bear.

The only limit to the speed of the working of this machine is the heating of the tools used. It will perform at least the labor of twelve men, and in vastly better manner, and can be worked equally well by steam power or by hand. It has been used and has given universal satisfaction.

For further information apply to **H. B. TEBBETTS,** 40 Wall St., New York, to whom all orders are to be addressed.

New York, December 15, 1849.

## FULLER'S PATENT INDIA RUBBER CAR SPRINGS.



**RAILROAD COMPANIES** are cautioned, before purchasing Springs, to examine the actual patents and judge for themselves.

Persons, under the Title of the New England Car Company, seeking fraudulently to invade Fuller's rights have put forth so many statements for the purpose of misleading the public, that an enumeration of some facts is absolutely necessary, for the purpose of putting persons interested upon their guard.

Fuller's patent is for the application of Discs of India-rubber with Metal Plates, for forming Springs for Railway Cars and Carriages—either one disc and two plates, or ten discs and plates, or any other number, are equally covered by the patent. Fuller is not bound to the use of short discs—he may use long discs and plates.

Ray's patent is simply and wholly the forming of airtight rubber cylinders, with hoops or bands round the outside, and the combination of elasticity of India rubber, with the elasticity of atmospheric air confined in the cylinder, and in no part of his patent is he authorized to use the form of spring which he is now fraudulently supplying to Railroad Companies. Such springs are direct and positive infringements of the very letter of Fuller's patent.

Fuller's patent is dated October, 1845, Ray's patent, August, 1848.

The spring patented by Ray never has been put in operation, and never can be made useful for Railroad cars.

A mere experiment, even if made, it is well known does not prove an invention; and it is ridiculous for such parties to hope to mislead the Presidents and Superintendents of Railroad companies, by claiming the invention because Ray alleges he made an experiment—which Fuller had made before him—had actually brought into working order, and obtained a patent for—and this too before Mr. Ray states he made his experiment—and that experiment not claimed to have been applied to a car or carriage.

Besides, the invention could not have been developed until India rubber, properly Vulcanised, could be made of a sufficient thickness. In the United States the art of vulcanising rubber by steam heat, (by which

means only can a body of rubber having any considerable thickness be vulcanised,) was not introduced until after the grant by the American government of the patent for springs to Fuller—whereas the process of vulcanising rubber by steam heat was invented in England about three years previously, and was used by Fuller there. This fact refutes entirely the claim of invention put forth by Mr. Ray, and proves the impossibility of his pretensions being true.

Fuller was the first and only inventor of the spring. A Mr. Dorr, whose connection with Mr. Goodyear is well known in this country, applied in England to Mr. Fuller, after he had published and patented his invention, and introduced another party for the purpose of obtaining the agency for the United States. They were furnished with a complete set of drawings and models, and with instructions to make arrangements for the supply of material of American manufacture—from that hour to the present not a single communication has been received from them. Some of these identical models have been traced into the hands of parties now seeking to invade Fuller's rights, and who have exhibited them as specimens of their own invention.

After this, the conveyance was made by Goodyear to certain parties here for the use for railroad springs of what he calls his Metallic rubber. Comment is unnecessary.

There are 5 or 6 different processes for the manufacture of vulcanised rubber, patented by as many different parties, some here, some in England, either of which would probably make good springs.

A large and powerful company has been organised under Fuller's patent, the particulars of which shall be given very shortly.

An action has been commenced against three railroad companies for infringement; and all other parties will assuredly be prosecuted if they continue farther to infringe upon Fuller's patent.

**W. C. FULLER,**

The only persons authorised to supply the Springs are **G. M. KNEVITT,** 38 Broadway, N. York, General Agent for the U. S.; and **JAS. LEE & Co.,** 19 India Wharf, Boston; **JOHN THORNLEY,** Chestnut st., Philad.

### Arch St. Machine Shop. BIRKENBINE, MARTIN & TROTTER,

Makers of  
**STEAM ENGINES,**

and  
**HYDRAULIC MACHINERY,**

NO. 16 ARCH STREET,  
PHILADELPHIA,

Will construct Steam Engines, Pumps, for Draining Mines and Land; supplying Water to Towns, Factories, Farms, etc;

Also, Street Stops, Fire Plugs, Water Tanks, and Hydraulic Rams, with

(BIRKENBINE'S PATENT VALVES.)  
B., M. & T. contract for Warming and Ventilating Buildings by Steam or Warm Water.

### J. E. Mitchell,

NO. 14 OLD YORK ROAD, PHILADELPHIA.  
Importer and manufacturer of

New Castle	{	Grindstones, of all sizes and grits.
Nova Scotia		
Wickersly	{	Millstones, made to order, with all the recent improvements.
French Burr		
Cocahoe	{	Fire Bricks and Tiles of various sizes.
Cologne		
American and	{	Burr Blocks, Bolting Cloths, Mill Irons, etc.
Patent compressed		
Garnikirk		

### To the Proprietors of Rolling Mills and Iron Works.

**THE** Undersigned—Proprietors of Townsend's Furnace and Machine Shop, Albany—are extensively engaged in the manufacture of Machinery and fixtures for Iron, and Copper Rolling Mills, and Iron Works. Having paid particular attention to the manufacture of *Rolls* (Rollers), both *chilled* and *dry-sand*, they feel confident that they can execute orders for such castings in a satisfactory manner. And to give assurance of this, they beg leave to refer to the following named persons, proprietors and managers of some of the most extensive rolling mills in the country, viz: Jno. F. Winslow, J. Tuckerman, H. Burden, W. Burtt, J. & J. Rogers, Saltus & Co., J. B. Bailey, L. G. B. Cannon, Hawkins & Artwater, etc., etc.

**F. & T. TOWNSEND.**

Albany, August 18, 1849.

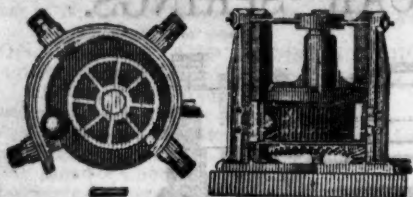
### Steam Boiler Explosions.

**THE** Subscriber having been appointed sole Agent for Faber's Magnetic Water Gauge, is now ready to supply the trade, and also individuals with this celebrated instrument. Besides the greatest safety from explosion resulting from its use, it is a thorough check against careless stoking and feeding. In marine engines it will regulate the exact quantity required in the "blow off." Pamphlets containing full information, can be had free on application to the Agent **JOSEPH P. PIRSSON,** Civil Engineer, 5 Wall st.



## MACHINERY.

## Henry Burden's Patent Revolving Shingling Machine.



THE Subscriber having recently purchased the right of this machine for the United States, now offers to make transfers of the right to run said machine, or sell to those who may be desirous to purchase the right for one or more of the States.

This machine is now in successful operation in ten or twelve iron works in and about the vicinity of Pittsburgh, also at Phoenixville and Reading, Pa., Covington Iron Works, Md., Troy Rolling Mills, and Troy Iron and Nail Factory, Troy, N. Y., where it has given universal satisfaction.

Its advantages over the ordinary Forge Hammer are numerous: considerable saving in first cost; saving in power; the entire saving of shingler's, or hammerman's wages, as no attendance whatever is necessary, it being entirely self-acting; saving in time from the quantity of work done, as one machine is capable of working the iron from sixty puddling furnaces; saving of waste, as nothing but the scoria is thrown off, and that most effectually; saving of staffs, as none are used or required. The time required to furnish a bloom being only about six seconds, the scoria has no time to set, consequently is got rid of much easier than when allowed to congeal as under the hammer. The iron being discharged from the machine so hot, rolls better and is much easier on the rollers and machinery. The bars roll rounder, and are much better finished. The subscriber feels confident that persons who will examine for themselves the machinery in operation, will find it possesses more advantages than have been enumerated. For further particulars address the subscriber at Troy, N. Y. P. A. BURDEN.

## Railroad Spikes and Wrought Iron Fastenings.

THE TROY IRON AND NAIL FACTORY, exclusive owner of all Henry Burden's Patented Machinery for making Spikes, have facilities for manufacturing large quantities upon short notice, and of a quality unsurpassed.

Wrought Iron Chairs, Clamps, Keys and Bolts for Railroad fastenings, also made to order. A full assortment of Ship and Boat Spikes always on hand.

All orders addressed to the Agent at the Factory will receive immediate attention.

P. A. BURDEN, Agent,  
Troy Iron and Nail Factory, Troy, N. Y.

## RAILROAD WHEELS.

**CHILLED RAILROAD WHEELS.**—THE UNDERSIGNED are now prepared to manufacture their Improved Corrugated Car Wheels, or Wheels with any form of spokes or discs, by a new process which prevents all strain on the metal, such as is produced in all other chilled wheels, by the manner of casting and cooling. By this new method of manufacture, the hubs of all kinds of wheels may be made whole—that is, without dividing them into sections—thus rendering the expense of banding unnecessary; and the wheels subjected to this process will be much stronger than those of the same size and weight, when made in the ordinary way.

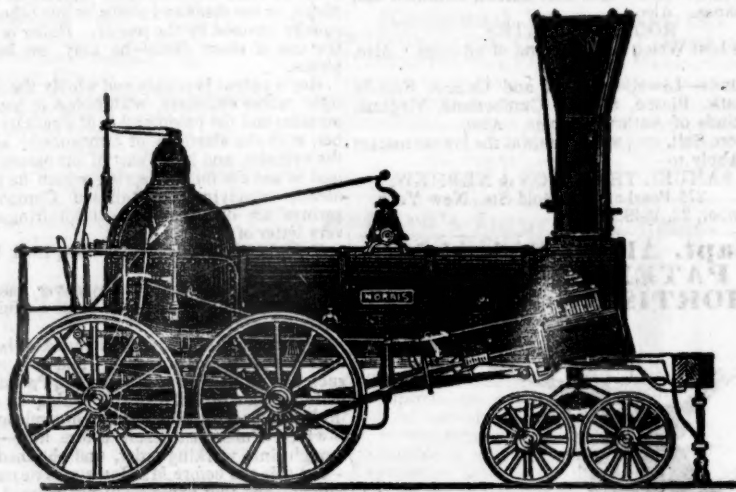
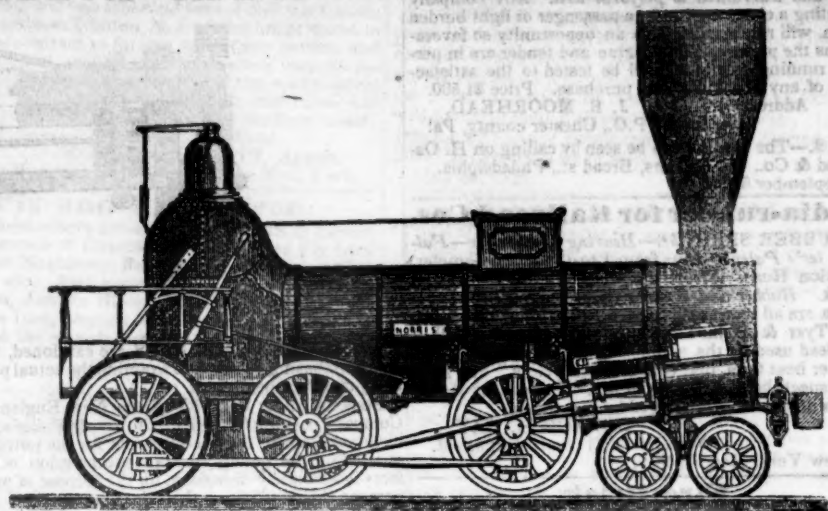
A. WHITNEY & SON,  
Willow St., below 13th,  
Philadelphia, Pa.

**CHILLED RAILROAD WHEELS.**—THE UNDERSIGNED, the Original Inventor of the Plate Wheel with solid hub, is prepared to execute all orders for the same, promptly and faithfully, and solicits a share of the patronage for those kind of wheels which are now so much preferred, and which he originally produced after a large expenditure of time and money.

A. TIERS,  
Point Pleasant Foundry.

He also offers to furnish Rolling Mill Castings, and other Mill Gearing, with promptness, having, he believes, the largest stock of such patterns to be found in the country.

A. T.  
Kensington, Philadelphia Co.,  
March 12, 1848.

NORRIS' LOCOMOTIVE WORKS.  
BUSHHILL, SCHUYLKILL SIXTH-ST., PHILADELPHIA.

THE UNDERSIGNED Manufacture to order Locomotive Steam Engines of any plan or size. Their shops being enlarged, and their arrangements considerably extended to facilitate the speedy execution of work in this branch, they can offer to Railway Companies unusual advantages for prompt delivery of Machinery of superior workmanship and finish.

Connected with the Locomotive business, they are also prepared to furnish, at short notice, Chilled Wheels for Cars of superior quality.

Wrought Iron Tyres made of any required size—the exact diameter of the Wheel Centre, being given, the Tyres are made to fit on same without the necessity of turning out inside.

Iron and Brass castings, Axles, etc., fitted up complete with Trucks or otherwise.

NORRIS, BROTHERS

**LAWRENCE'S ROSENDALE HYDRAULIC Cement.** This Cement is warranted equal to any manufactured in this country, and has been pronounced superior to Francis' "Roman." Its value for Aqueducts, Locks, Bridges, Flooms, and all Masonry exposed to dampness, is well known, as it sets immediately under water, and increases in solidity for years.

For sale in lots to suit purchasers, in tight papered barrels, by

JOHN W. LAWRENCE,

142 Front-street, New York.

Orders for the above will be received and promptly attended to at this office. 32 ly.

## PATENT MACHINE MADE HORSE-SHOES.

The Troy Iron and Nail Factory have all ways on hand a general assortment of Horse Shoes, made from Refined American Iron.

Four sizes being made, it will be well for those ordering to remember that the size of the shoe increases as the numbers—No. 1 being the smallest.

P. A. BURDEN, Agent,  
Troy Iron and Nail Factory, Troy, N. Y.

## Text Book of Mechanical Drawing,

FOR the use of SCHOOLS and SELF-INSTRUCTION, containing,

1st. A series of progressive practical problems in Geometry, with full explanations, couched in plain and simple terms; showing also the construction of the parallel ruler, plane scales and protractor.

2d. Examples for drawing plans, sections and elevations of Buildings and Machinery, the mode of drawing elevations from circular and polygonal plans, and the drawing of Roman and Grecian Mouldings.

3d. An introduction to Isometrical drawing, with 4 plates of examples.

4th. A treatise on Linear Perspective, with numerous examples and full explanations, rendering the study of the art easy and agreeable.

5th. Examples for the projection of shadows.

The whole illustrated with 50 STEEL PLATES.

Published by WM. MINIFIE & CO.,

114 Baltimore St., Baltimore Md.  
Price \$3, to be had of all the principal booksellers.



MR. HALE: "The New England Car Co., having been engaged for the last six months in introducing the Vulcanized India-rubber Car Springs upon the different railroads in this and other states, and having in particular introduced it upon the Boston and Worcester railroad with perfect success, were much gratified to find, by your paper of this morning, that the article had given satisfaction to the president of that corporation, and the terms of just commendation in which you were pleased to speak of it. But their gratification was scarcely equalled by their surprise, when, or arriving at the close of your paragraph, they found the results of all their labors attributed to a foreign source, with which the New England Car Co. has no connection. The material used on the Boston and Worcester railroad, and all the other railroads in this country, where any preparation of India-rubber has been successfully applied, is entirely an American invention, patented in the year 1844 to Charles Goodyear, of New Haven, Conn., and the application of it to this purpose and the form in which it is applied are the invention of F. M. Ray of New York. The only material now in use, and so far as has yet appeared, the only preparation of India rubber capable of answering the purpose, has been furnished under these patents by the New England Car Company, manufactured under the immediate inspection of their own agent. If any other should be produced, the right to use it would depend upon the question of its interference with Mr. Goodyear's patent. The New England Car Company have their place of business in this city at No. 99 State street, and are prepared to answer all orders for the Vulcanized India rubber Car Springs, of the same quality and of the same manufacture as those which they have already placed on your road, and most to the other roads terminating in this city."

And yet Mr. Kneivitt is using these experiments made upon the Springs of the Car Company to induce the public to purchase his springs, and is attempting to impose upon them the belief that the springs used were furnished by him! We ask whether such a course is honorable, or entitles his statements to much consideration from the public.

The above Springs are for sale 98 Broadway, New York, and 99 State street, Boston.

EDWARD CRANE Agent, Boston.  
F. M. RAY, Agent, New York.

Boston, May 8, 1849.

**NICOLL'S PATENT SAFETY SWITCH FOR Railroad Turnouts.** This invention for some time in successful operation on one of the principal railroads in the country, effectually prevents engines and their trains from running off the track at a switch, left wrong by accident or design. It acts independently of the main track rails; being laid down or removed without cutting or displacing them.

It is never touched by passing trains, except when in use, preventing their running off the track. It is simple in its construction and operation, requiring only two castings and two rails; the latter, even if much worn or used, not objectionable.

Working models of the Safety Switch may be seen at Messrs. Davenport, Bridges & Kirk's Cambridge Port, Mass., and at the office of the Railroad Journal, New York.

Plans, Specifications, and all information obtained, on application to the Subscriber, Inventor and Patentee.

G. A. NICOLLS,  
Reading, Pa.

### Railroad Lanterns.

**COPPER and Iron Lanterns for Railroad Engines,** fitted with heavy silver plated Parabolic Reflectors of the most approved construction, and Solar Argand Lamps; manufactured by

HENRY N. HOOPER & CO.,  
No. 24 Commercial St. Boston.

August, 16, 1849.

6m33

### NORRIS' LOCOMOTIVE WORKS, SCHENECTADY, N. Y.

THESE Works are in full operation in Manufacturing to order, Locomotive Steam Engines & Tenders, of the best principle and construction of material, using wrought iron heavy frames with pedestals welded thereto, and all parts of the engine made of the best wrought iron, except cylinders, pumps and boxes—obtaining greater durability, and carrying less weight over the road, than engines constructed of cast iron.

Wrought Iron Tires made any required size, and Tire Bars bent and welded with dispatch.

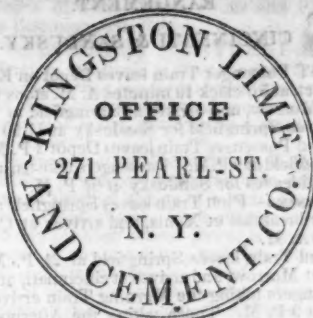
Chilled Wheels for Cars, Trucks and Tenders, made from the toughest iron.

Driving and Tender and Car Wheels fitted to Axles with Brass Boxes and Springs, and Railroad Machinery generally. Manufactured and for sale by

E. S. NORRIS.

April 11, 1849.

### Hydraulic Cement.



**HYDRAULIC CEMENT, OF BEST QUALITY,** manufactured at their works, for sale in lots to suit purchasers.

Also, Ground Lime, a superior article for Builders.  
ISAAC FRYER, Sec'y.  
January 19, 1850.

### RAILROADS.

#### EASTERN RAILROAD.

#### WINTER ARRANGEMENT.

On and after Monday, October 8, 1849, trains leave Boston daily (Sundays excepted):

For Lynn, 7 34, 10 a.m., 12 24, 4 44, 6 44 p.m.  
For Salem, 7 34, 10 a.m., 12 24, 4 44, 6 44 p.m.  
For Manchester and Gloucester, 10 a.m., 4 p.m.  
For Newburyport, 7 a.m., 12 24, 4 44, 6 44 p.m.  
For Portsmouth, 7 a.m., 2 44, 4 44 p.m.  
For Portland, Me., 7 a.m., 2 44 p.m.

And for Boston,  
From Portland, 8 44 a.m., 4 p.m.  
For Portsmouth, 7 10 44 a.m., 6 44 p.m.  
For Newburyport, 7 11 34 a.m., 3 7 44 p.m.  
For Gloucester, 7 a.m., 1 44 p.m.  
For Manchester, 8 a.m., 2 p.m.  
For Lynn, 7 44, 8 44, 9 44, 10 44 a.m., 12 55, 2 44, 4 44, 6 44 p.m.  
For Salem, 7 44, 8 44, 9 44, 10 44 a.m., 12 40, 2 44, 4 44, 6 44 p.m.

\* Or on their arrival from the East.  
Freight trains each way daily. Office 17 Merchants' Row, Boston.  
Feb. 3. JOHN KINSMAN, Superintendent.

#### BOSTON & LOWELL RAILROAD.

Passenger trains run as follows, viz:

Upper Railroad Trains.  
Leave Boston at 7 14 a.m., 12 m. and 4 14 p.m.  
Leave Lowell at 8 a.m., 1 40 m. and 7 p.m.  
Accommodation Trains.  
Leave Boston at 7 5 and 9 4 a.m., 2 14, & 6 14 p.m.  
Leave Lowell at 7 and 10 a.m., 3 14, and 6 p.m.  
Woburn Branch Trains.  
Leave Woburn Centre at 6 14, 7 14, and 9 14 a.m., 1 14, 4 14 p.m.  
Leave Boston at 8 14, 11 14 a.m., 3 54 and 7 p.m.  
On Saturdays, an extra train leaves Woburn centre at 9 p.m. and Boston at 10 p.m.

WALDO HIGGINSON,  
Agent Boston and Lowell Railroad Cor.  
Boston, October 5, 1849.

#### ALBANY AND BUFFALO RAILROADS.

Four Trains daily, Sundays excepted, viz:  
Leave Albany, 6 a.m., 9 a.m., 2 p.m., 7 p.m.  
Reach Buffalo, 15 hours, 18 hours, 23 hours, 18 hours.  
Arrive from Buffalo, 7 p.m., 2 14 a.m., 12 14 m., 3 14 p.m.  
Passengers by the Express Train reach Buffalo from New York, and New York from Buffalo, in 24 hours. The Isaac Newton and Oregon connect at Albany with this Train. Baggage cars, with careful baggage masters, run through with all the trains.

For Schenectady, Saratoga Springs & Whitehall, Leave Albany at 7 a.m. and 2 p.m. For Schenectady only at 6, 7 and 9 a.m. and 12 14, 2 and 7 p.m. For Erie Canal packets at 7 a.m. and 7 p.m. By Plank Road from Schenectady to Saratoga at all hours by stages, etc.

The Eastern Trains leave Albany at 7 a.m. and 3 p.m. The wagons of the company take baggage free between railroads and steamboats at Albany.

E. FOSTER, Jr., Sec'y  
Albany and Schenectady Railroad Co.  
Albany, August, 1849.

### BOSTON AND MAINE RAILROAD.

Winter Arrangement, 1850.  
Outward Trains from Boston

For Portland at 7 a.m. and 2 14 p.m.  
For Rochester at 7 a.m., 2 14 p.m.  
For Great Falls at 7 a.m., 2 14, 3 14 p.m.  
For Haverhill at 7 and 9 14 a.m., 2 14, 3 14, 5 14, 6 14 p.m.  
For Lawrence 7 14, 9 14 a.m., 12 m., 2 14, 3 14, 4 14, 5 14 p.m.  
For Reading 7 14 a.m., 12 m., 2 14, 3 14, 4 14, 5 14, 7 14, 9 14 p.m.  
For Medford 7 14, 9 14 a.m., 12 14, 2 14, 5 14, 6 14, 9 14 p.m.  
The Station in Boston is on Haymarket Square.

CHAS. MINOT, Super't.

January 10, 1850.

### NEW YORK AND HARLEM RAILROAD. NEW ARRANGEMENT.

On and after Wednesday, October 17th, 1849, the Cars will run as follows, (Sundays excepted) until further notice:

Trains will leave the City Hall, New York, for—  
Harlem and Morrisania at 6 14, 8, 10, 11, 12 a.m., 2, 3, 4, 5, 6 14 p.m.  
New Village, at 8 14, 10, 12 a.m., 3, 5, 6 14 p.m.  
Fordham and Williams' Bridge, at 8 14, 10, 12 a.m., 2 34, 5, 6 14 p.m.  
Hunt's Bridge, Underhill's and Hart's Corners, at 8 14, 10 a.m., 3 14, 5 p.m.  
Tuckahoe and White Plains, at 8 14, 10 a.m., 2 14, 3 14, 5 p.m.  
Pleasantville, New Castle, Bedford, Mechanicsville, Purdy's, Croton Falls, and intermediate stations, on signal, 8 14 a.m., 2 14, 3 14 p.m.  
Brewster's, Towner's, Patterson, Paulding's, South Dover, Dover Furnace, and Dover Plains, 8 14 a.m., 2 14 p.m.

NOTICE—Passengers are reminded of the great danger of standing upon the platform of the cars, and hereby notified that the practice is contrary to the rules of the Company, and that they do not admit any responsibility for injury sustained by any passenger upon the platforms, in case of accident.

Returning to New York will leave  
Harlem and Morrisania at 6 03, 7 14, 8 37, 9, 10 6, 12 a.m., 1 43, 3 07, 3 14, 5, 5 47 p.m.  
New Village, at 5 53, 8 27, 9 56 a.m., 1 33, 2 57, 5 36 p.m.  
Fordham and Williams' Bridge at 5 14, 8 14, 9 43, 10 57 a.m., 1 20, 2 44, 5 24 p.m.  
Hunt's Bridge at 8 04, 9 33 a.m., 2 34, 5 16 p.m. On signal.  
Underhill's, at 7 56, 9 23 a.m., 2 26, 5 10 p.m. On signal.  
Tuckahoe at 7 53, 9 18, 10 40 a.m., 2 23, 5 08 p.m.  
Hart's Corners at 7 38, 9 03 a.m., 2 08, 4 54 p.m.—On signal.  
White Plains at 7 14, 8 55, 10 20 a.m., 2, 4 47 p.m.  
Davis' Brook at 8 40, 10 11 a.m., On signal. 4 39 p.m. On signal.  
Unionville, 8 27, 10 11 a.m. On signal. 4 29 p.m.—On signal.  
Pleasantville at 8 20, 9 56 a.m., 4 24 p.m.  
Champanqua, at 8 10, 9 50 a.m. On signal. 4 18 p.m. On signal.  
New Castle, at 7 56, 9 38 a.m., 4 07 p.m.  
Bedford at 7 46, 9 32 a.m., 4 02 p.m.  
Mechanicsville at 7 36, 9 22 a.m., 3 52 p.m.  
Golden's Bridge, 7 28, 9 17 a.m. On signal. 3 47 p.m. On signal.  
Purdy's at 7 20, 9 09 a.m., 3 39 p.m.  
Croton Falls, at 7 14, 9 04 a.m., 3 34 p.m.  
Brewster's, at 8 50 a.m., 3 20 p.m.  
Towner's, at 8 35 a.m., 3 05 p.m.  
Patterson, at 8 27 a.m., 2 57 p.m.  
Paulding's, at 8 17 a.m., 2 47 p.m.  
South Dover, 8 02 a.m., 2 32 p.m.  
Dover Furnace, 7 55 a.m., 2 25 p.m.  
Dover Plains, at 7 45 a.m., 2 15 p.m.

The trains for Harlem and Morrisania leaving City Hall at 6 14, 8, 10, 11, 12, 2, 4 and 6 14, returning from Morrisania and Harlem at 6 03, 7 14, 8 37, 9, 10 6, 12, 3 14 and 5 o'clock, will land and receive passengers at 27th 42d, 51st, 61st, 79th, 86th, 109th, 115th, 125th and 132d streets.

The Dover Plains train from New York at 2 14 p.m., returning leaving Dover Plains at 7 14 a.m., will not stop between White Plains and New York, (except at Tuckahoe, Williams' Bridge and Fordham,) unless to leave passengers coming from above Croton Falls.

A car will precede each train ten minutes to take up passengers in the city. The last car will not stop, except at Broome st. and 27th street.

Freight Trains leave New York at 1 o'clock p.m.—Returning, leaves Dover Plains at 12 o'clock m.  
For Sunday Arrangements, see hand bills.

M. SLOAT, Supt.



# NEW YORK AND ERIE RAILROAD. OPEN TO ELMIRA.

On and after the 8th of October, the trains will run as follows: (Sundays excepted):

**THROUGH PASSENGER TRAINS** from New York to Elmira, will leave the Company's Pier at the foot of Duane street, at 7 o'clock a.m. and 5 o'clock p.m., stopping at all the way stations.

From Elmira the through trains will leave for New York at 5 o'clock a.m. and 6 1/2 p.m., stopping also at all the way stations.

**A SPECIAL WAY TRAIN**, for Port Jervis and intermediate stations, except Sufferns, will leave New York every Saturday at 3 p.m., and will leave Port Jervis for New York every Monday morning, at 4 55 o'clock.

**A MILK TRAIN**, with Passenger Cars attached, will leave Port Jervis for New York at 3 o'clock a.m. and returning will leave New York for Port Jervis at 3 p.m. Another milk train with passenger car, will leave Piermont for Otisville at 9 a.m., and returning leave Otisville at 4 55 p.m., connecting with the freight boats to New York. The milk trains do not connect with the P. and R. railroad.

**FREIGHT.**—Freight leaves New York every night for all the regular stations on the road. A freight train will leave Elmira every morning at 3 20 o'clock a.m. —A freight train will leave Port Jervis for New York every morning at 5 o'clock, and another at 8 a.m. with market freights.

A Special Train for cattle and other live stock, will leave Elmira on Tuesdays and Fridays at 12 20 p.m.; and from Port Jervis, for New York, on Wednesdays and Saturdays, at 8 40 a.m.

FARE from New York to Elmira \$5 75. The intermediate stations in proportion.

**COMMUTATION TICKETS.** at lower rates, for the stations between New York and Port Jervis, can be purchased at the New York and Piermont offices.

The Steamboat ERIE leaves New York for Piermont every day at 3 o'clock, and returns on the arrival of the train from Elmira, arriving at New York at about 7 1/2 p.m.

JAMES P. KIRKWOOD, Superintendent.

# GEORGIA RAILROAD. FROM AUGUSTA TO ATLANTA—171 MILES.

AND WESTERN AND ATLANTIC RAILROAD, FROM ATLANTA TO DALTON, 100 MILES.

This Road, in connection with the South Carolina Railroad, and Western and Atlantic Railroad, now forms a continuous line, 408 miles in length, from Charleston to Dalton (Cross Plains) in Murray county, Ga. 32 miles from Chattanooga, Tenn.

## RATES OF FREIGHT.

	Between Augusta and Dalton.	Between Charleston and Dalton.
	271 miles.	408 miles.
1st class Boxes of Hats, Bonnets, and Furniture, per cubic foot	\$0 18	\$0 28
2d class Boxes and Bales of Dry Goods, Saddlery, Glass, Paints, Drugs, and Confectionary, per 100 lbs.	1 00	1 50
3d class Sugar, Coffee, Liquor, Bagging, Rope, Cotton, Yarns, Tobacco, Leather, Hides, Copper, Tin, Feathers, Sheet Iron, Hollow ware, Castings, Crockery, etc.	0 60	0 85
4th class Flour, Rice, Bacon, Pork, Beef, Fish, Lard, Tallow, Beeswax, Bar Iron, Ginseng, Mill Gearing, Pig Iron, and Grindstones, etc.	0 40	0 65
Cotton, per 100 lbs.	0 45	0 70
Molasses per hogshead	8 50	13 50
" " barrel	2 50	4 25
Salt per bushel	0 18	
Salt per Liverpool sack	0 65	
Ploughs, Corn Shellers, Cultivators, Straw Cutters, Wheelbarrows	0 75	1 50

German or other emigrants, in lots of 20 or more, will be carried over the above roads at 2 cents per mile.

Goods consigned to S. C. Railroad Company will be forwarded free of commissions. Freight payable at Dalton.

F. C. ARMS, Sup't of Transportation.

# LITTLE MIAMI RAILROAD.—SUMMER ARRANGEMENT.

CINCINNATI & SANDUSKY.

**FIRST** Passenger Train leaves Depot on East Front street, at 5 o'clock 10 minutes A. M. stops for breakfast at Morrow, and arrives at Springfield at 11 10 A. M. Leaves Springfield for Sandusky at 11 50 A. M.

**Second** Passenger Train leaves Depot 3 P. M. arrives at Springfield at 9 P. M. Passengers take tea at Springfield, and leaves for Sandusky at 9 1/2 P. M.

**RETURNING.**—First Train leaves Springfield at 4 A. M. Stop for breakfast at Xenia, and arrives at Cincinnati at 10 15 A. M.

**Second** Train leaves Springfield at 2 1/2 P. M. Stop for tea at Morrow, and arrives at Cincinnati, at 8 1/2 P. M.

Passengers taking the Morning Train arrive at Sandusky at 9 P. M. Those taking the Afternoon Train arrive at 7 1/2 A. M. next morning, and proceed directly on in the boats.

Passengers for Columbus, Zanesville, Wheeling, and intermediate towns, should take the 5, 10 A. M. Train.

The Ohi Stage Company are running the following Lines in connection with the Trains:

A Daily Daylight Line to Columbus from Springfield in connection with the Morning Train from Cincinnati. Also, Daily Lines to Columbus, from Xenia and Springfield, connecting with the 3 o'clock, pm. Train from Cincinnati.

Fare from Cincinnati to Xenia	\$1 90
Do do Springfield	2 50
Do do Sandusky City	6 50
Do do Buffalo	10 00
Do do Columbus	4 50

For other information and through tickets, apply at the Ticket Office on Broadway, near Front-st., Cincinnati.

W. H. CLEMENT, Superintendent.

The Company will not be responsible for Baggage exceeding 50 dollars in value, unless the same is returned to the Conductors or Agent, and freight paid at the rate of a passage for every 500 dollars in value above that amount.

# PHILADELPHIA, WILMINGTON, & BALTIMORE RAILROAD.

Summer Arrangement. April 1st, 1849.—Fare \$3.

Leave Philadelphia 8 1/2 a.m., and 10 p.m.

Leave Baltimore 9 a.m. and 8 p.m.

Sunday—Leave Philadelphia at 10 p.m.

Baltimore at 8 p.m.

Trains stop at way stations.

Charleston, S. C. Through tickets Philadelphia to Charleston, \$20.

Pittsburg and Wheeling. Through ticket, Philadelphia to Pittsburg, \$12.

Wheeling, 13.

Through tickets sold at Philadelphia office only.

Wilmington Accommodation. Leave Philadelphia at 12 m., 4 and 7 p.m.

Leave Wilmington at 7 1/2 a.m., 4 1/2 and 7 p.m.

Newcastle Line. Leave Philadelphia at 2 1/2 p.m.—Baltimore at 1 1/2 p.m.

Fare \$3.—Second class, \$2.

N.B.—Extra baggage charged for.

I. R. TRIMBLE, Gen. Supt.

# BALTIMORE AND SUSQUEHANNA RAILROAD.—Reduction of Fare. Morning and Afternoon Trains between Baltimore and York.—The Passenger Trains

run daily, except Sundays, as follows:

Leave Baltimore at 9 a.m. and 3 1/2 p.m.

Arrive at 9 a.m. and 6 1/2 p.m.

Leave York at 5 a.m. and 3 p.m.

Arrive at 12 1/2 p.m. & 8 p.m.

Leave York for Columbia at 1 1/2 p.m. & 8 a.m.

Leave Columbia for York at 8 a.m. & 2 p.m.

Fare:

To York \$1 50

" Wrightsville 2 00

" Columbia 2 12 1/2

Way points in proportion.

# PITTSBURG, GETTYSBURG, AND HARRISBURG.

Through tickets to Pittsburg via stage to Harrisburg \$9

Or via Lancaster by railroad 10

Through tickets to Harrisburg or Gettysburg 3

In connection with the afternoon train at 3 1/2 o'clock, a horse car is run to Green Spring and Owings' Mill, arriving at the Mills at 5 1/2 p.m.

Returning, leaves Owings' Mills at 7 a.m.

D. C. H. BORDLEY, Sup't.

Ticket Office, 63 North st.

# PHILADELPHIA & READING RAILROAD.

Passenger Train Arrangement for 1848.

A Passenger Train will leave Philadelphia and Pottsville daily, except Sundays, at 9 o'clock a.m.

The Train from Philadelphia arrives at Reading at 12 18 m.

The Train from Pottsville arrives at Reading at 10 43 a.m.

Fares. Miles. No. 1. No. 2

Between Phila. and Pottsville, 92 \$3.50 and \$3.00

" Reading 58 2.25 and 1.90

" Pottsville 34 1.40 and 1.20

Five minutes allowed at Reading, and three at other way stations.

Passenger Depot in Philadelphia corner of Broad and Vine streets.

# BALTIMORE AND OHIO RAILROAD AND WASHINGTON BRANCH.

On and after January 1, 1850, Passenger Trains will run as follows:

Leave Baltimore for Ellicott's Mills, Frederick, Harper's Ferry, Martinsburg, Hancock and Cumberland, every morning at 7 1/2 o'clock. This line carries the Great Mail, and connects with Post Coaches at Cumberland, for Wheeling and Pittsburg, over the National Road. Also with the Winchester Trains, at Harper's Ferry. N.B.—Passengers for Pittsburg take the steamers of the Monongahela slack water navigation at Brownsville, only 76 miles from Cumberland.

Leave Baltimore for Ellicott's Mills, Frederick and Harper's Ferry, daily, except Sunday, at 4 1/2 p.m.

Leave Baltimore for Washington City, daily, at 6 a.m. and 5 p.m.—daily, except Sunday, at 9 a.m.

The early train connects with the Great Southern Line, via Fredericksburg and Richmond, to Charleston.

Leave Cumberland for Baltimore, etc., at 8 1/2 a.m., daily, connecting with the train from Winchester at Harper's Ferry—with the Evening Train to Washington City, at the Relay House—and with the Evening Train to Philadelphia, at Baltimore. Time for arriving at Baltimore, 5 1/2 p.m.

Leave Harper's Ferry for Baltimore, daily, except Sunday, at 7 1/2 a.m.—taking in Passengers who leave Frederick at 8 1/2 a.m.

Leave Washington for Baltimore, daily, at 6 a.m. & 5 1/2 p.m., and daily, except Sunday, at 9 1/2 a.m.

The early train connects at the Relay House with the morning line to Cumberland and the West, and at Baltimore with the day line to Philadelphia and New York.

Through tickets are sold at Philadelphia and Baltimore for Pittsburg and Wheeling, and at Philadelphia and New York for Charleston, S. C., at the following

RATES OF FARE.

To Pittsburg. Wheeling. Charleston.

In winter. Summer. Win. Sum. ton.

From Philadelphia, \$13 \$12 \$14 \$13 \$20

" Baltimore, 11 10 12 11

" New York, 20

Passengers leaving New York not later than the afternoon line via Newark, etc., reach Baltimore in season to take the next morning's lines to the South and West.

Passengers leaving Cumberland in the morning and Washington in the evening lines, reach Baltimore in season to proceed to Philadelphia by the evening train at 8 p.m.—so as to reach New York before noon the next day.

An Emigrant line by burthen cars, leaves Baltimore every morning, except Sundays, at 4 o'clock—connecting with a line of the previous day from N. York—and at Cumberland with a wagon line to Pittsburg or Brownsville and Wheeling. Fare by this line:

From New York to Pittsburg, \$8 00

" Philadelphia " 6 50

" Baltimore " 5 00

By order, J. T. ENGLAND, Agent.

# SOUTH CAROLINA RAILROAD.—A Passenger Train runs daily from Charleston, on the arrival of the boats from Wilmington, N. C., in connection with trains on the Georgia, and Western and Atlantic Railroads—and by stage lines and steamers connects with the Montgomery and West Point, and the Tusculum Railroad in N. Alabama.

Fare through from Charleston to Montgomery daily \$26 50

Fare through from Charleston to Huntsville, Decatur and Tusculum 22 00

The South Carolina Railroad Co. engage to receive merchandise consigned to their order, and to forward the same to any point on their road; and to the different stations on the Georgia and Western and Atlantic Railroad; and to Montgomery, Ala., by the West Point and Montgomery Railroad.

JOHN KING, Jr., Agent.



**CENTRAL RAILROAD—FROM SAVANNAH**  
to Macon. Distance 190 miles.

This Road is open for the transportation of Passengers & Freight.

Rate of Passage	\$9 00. Freight—
On weight goods generally,	50 cts. per hundred
On measurement goods	13 cts. per cubic ft.
On brls. wet (except molasses and oil)	1 50 per barrel.
On brls. dry (except lime)	50 cts. per barrel.
On iron in pigs or bars, castings for mills, and unboxed machinery	40 cts. per hundred
On hhd. and pipes of liquor, not over 120 gallons	\$5 00 per hhd.
On molasses and oil	\$6 00 per hhd.

Goods addressed to F. WINTER, Agent, forwarded free of commission.

THOMAS PURSE,  
Gen'l Sup't Transportation.

**THE WESTERN AND ATLANTIC RAILROAD.**—This Road is now in operation to Oothecala, a distance of 89 miles, and connects daily (Sundays excepted) with the Georgia Railroad.

From Kingston, on this road, there is a tri-weekly line of stages, which leave on the arrival of the cars on Tuesday, Thursday and Saturday, for Warrenton, Huntsville, Decatur, and Tusculumbia, Alabama, and Memphis, Tennessee.

On the same days the stages leave Oothecala for Chattanooga, Jasper, Murfreesborough, Knoxville and Nashville, Tennessee.

This is the most expeditious route from the east to any of these places.

CHAS. F. M. GARNETT,  
Chief Engineer

**GREAT NORTHERN & SOUTHERN MAIL ROUTE.** From New York to Charleston, S. C. daily, via Philadelphia, Baltimore, Washington City, Richmond, Petersburg, Weldon and Wilmington, N. C.

Travellers by this route, leaving New York at 4 p. m., Philadelphia at 10 p. m., and Baltimore at 6 a. m., proceed without delay at any point on the route, arriving at Richmond, Va., in a day, and at Charleston, S. C., in two and half days from New York.

Through tickets from New York to Charleston, \$20 00  
" " Baltimore to Richmond, 7 00  
" " " Petersburg, 7 50

For tickets to Richmond and Petersburg, or further information, apply at the Southern Ticket Office, adjoining the Washington Railroad Ticket Office, Pratt Street, Baltimore. STOCKTON & FALLS.  
October, 1849.

**ST. LAWRENCE & ATLANTIC RAILROAD COMPANY.**

Notice is hereby given that the Trains run twice per day between Montreal and St. Hyacinth, leaving each terminus alternately, until further notice.

Leaving St. Hyacinth at	7 am.
" " "	3 pm.
Leaving Montreal at	10 am.
" " "	6 pm.

THOMAS STEERS, Secretary.

May 31, 1849.

**CORROSIVE SUBLIMATE.**

THIS article now extensively used for the preservation of timber, is manufactured and for sale by POWERS & WEIGHTMAN, manufacturing Chemists, Philadelphia.

Jan. 20, 1849.

**Engine and Car Works, PORTLAND, MAINE.**

THE PORTLAND COMPANY, Incorporated August 8th, 1846, with a capital of \$250,000, have erected their extensive Works upon the deep water of Portland Harbor, and receive and transport, to and from their works direct, to and from vessels of any class.

They now manufacture to order, and deliver upon the Railroads running in each direction from the city, or on shipboard as wanted, Locomotive, Stationary, or Steam Boat Engines; Passenger, Mail, Freight, Earth and Hand Cars; Railway Frogs, Switches, Chairs and Castings; and every other description of Machinery.

HORACE FELTON,  
Superintendent.

JAMES C. CHURCHILL,  
General Agent and Clerk.

**C. W. Bentley & Co.,**

IRON Founders, Portable Steam Engine Builders and Boiler Makers, Corner Front and Plowman Sts., near Baltimore St. Bridge.

BALTIMORE, MARYLAND.

Their Engines are simple in their construction, compact and durable; they require no brick work in setting them, and occupy but a small space (a six horse power engine and boiler, standing on a cast iron plate of three by six feet.)

They also manufacture Major W. P. Williamson's new oscillating Engine; a superior article, combining cheapness and simplicity (one of which may be seen in operation at their shop.) Both of these engines are adapted to any purpose where power is required, and may be made of any capacity; and for economy in use of fuel are unsurpassed.

All kinds of machinery made to order. Steam Generators, Force Pumps, Wrought Iron Pipes and Fittings for Steam, Water, Gas, etc., constantly on hand, Baltimore, June 6, 1849.

**PHILADELPHIA CAR MANUFACTORY,**

CORNER SCHUYLKILL, 2D AND HAMILTON STS., SPRING GARDEN, PHILADELPHIA CO., PA.

**Kimball & Gorton,**

Having recently constructed the above works, are prepared to construct at short notice all kinds of

**RAILROAD CARS, Viz:**

Passenger Cars of all classes—Open and Covered Freight and Express Cars—Coal Cars—Hand Cars & Trucks of all descriptions.

They are also prepared to furnish Chilled Wheels of any pattern. Car Wheels & Axles fitted and furnished. Snow Ploughs and Tenders made to order. Steel and other Springs always on hand.

All orders will be filled at short notice, and upon as good terms as at any other establishment in the country. Omnibuses from the Exchange run within one square of the manufactory every 10 minutes during the day. Philadelphia, June 16, 1849. 1y25

**Patent India Rubber Steam Packing.**

THIS article, made by the subscriber, who alone is authorized to make it, is warranted to stand as high a degree of heat as any that has been or can be made by any person—and is the article which has made the reputation of India Rubber Steam Packing and the demand therefor. A large assortment of all thicknesses requisite for any description of engines, steam pipes, valves, etc., constantly on hand and for sale by the manufacturer and patentee, who will give every information regarding its properties, mode of use, etc. at the warehous.

JOHN GREACHEN, JR.,

98 Broadway, opposite Trinity Church.

New York, October, 1849.

**FAIRBANKS' RAILROAD SCALES.**—THE subscribers are prepared to construct at short notice, Railroad and Depot Scales, of any desired length and capacity. Their long experience as manufacturers—their improvements in the construction of the various modifications, having reference to strength, durability, retention of adjustment, accuracy of weight and dispatch in weighing—and the long and severe tests to which their scales have been subjected—combine to ensure for these scales the universal confidence of the public.

No other scales are so extensively used upon railroads, either in the United States or Great Britain;—and the managers refer with confidence to the following in the United States.

Eastern Railroad.	Boston & Maine Railroad.
Providence Railroad.	Providence and Wor. Road.
Western Railroad.	Concord Railroad.
Old Colony Railroad.	Fitchburg Railroad.
Schenectady Railroad.	Syracuse and Utica Road.
Balt. and Ohio Railroad.	Baltimore and Susq. Road.
Phila. & Reading Road.	Schuylkill Valley Road.
Central (Ga.) Railroad.	Macon and Western Road.
	New York and Erie Railroad.

And other principal Railroads in the Western, Middle and Southern States.

E. & F. FAIRBANKS & CO.

Agents, } FAIRBANKS & Co., 81 Water St., N. York.  
} A. B. NORRIS, 196 Market St. Philadelphia.  
April 22, 1849. 1y\*17

**Coal.**

**CUMBERLAND SEMI-BITUMINOUS COAL** superior quality for Locomotives, for sale by

H. B. TEBBETTS,  
No. 40 Wall St., New York.

May 12, 1849. 1m19

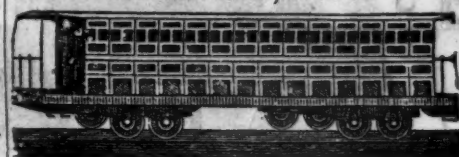
**ENGINEERS' AND SURVEYERS'**

**INSTRUMENTS MADE BY EDMUND DRAPER,**  
Surviving partner of STANCLIFFE & DRAPER.



No 23 Pear street, below Walnut, Philadelphia.

**CAR MANUFACTORY CINCINNATI, OHIO.**



**KECK & DAVENPORT** would respectfully call the attention of Railroad Companies in the West and South to their establishment at Cincinnati. Their facilities for manufacturing are extensive, and the means of transportation to different points speedy and economical. They are prepared to execute to order, on short notice, Eight-Wheeled Passenger Cars of the most superior description. Open and Covered Freight Cars, Four or Eight-Wheel Crank and Lever Hand Cars, Trucks, Wheels and Axles, and Railroad Work generally.

Cincinnati, Ohio, Oct. 2, 1848.

44N

**MACHINE WORKS OF ROGERS KETCHUM & GROSVENOR, Patterson, N. J.** The undersigned receive orders for the following articles manufactured by them of the most superior description in every particular. Their works being extensive, and the number of hands employed being large, they are enabled to execute both large and small orders with promptness and dispatch.

**Railroad Work.**—Locomotive Steam Engines and Tenders; Driving and other Locomotive Wheels, Axles Springs and Flange Tires; Car Wheels of Cast Iron a variety of patterns and chills; Car Wheels of Cast Iron with wrought tires; Axles of best American refined iron; springs; boxes and bolts for cars.

**Cotton, Wool and Flax Machinery** of all descriptions and of the most improved patterns, style and workmanship.

Mill gearing and millwright work generally, hydraulic and other presses; press screws; callenders; lathes and tools of all kinds; iron and brass castings of all descriptions.

ROGERS, KETCHUM & GROSVENOR,  
Patterson, N. J. or 74 Broadway, New York.

**Plumbago, or Black Lead, BLACK LEAD IN ITS CRUDE STATE, AND**

Black Lead Paints, prepared for various purposes. This paint is peculiarly adapted for the covering of all kinds of iron railing, or iron work wherever exposed; such as railroad bars, anchors, bolts for vessels, etc.—It makes the most durable paint to protect wood work from moisture, and the indestructible nature of the body of it peculiarly fits it for covering the inside of depots, roofs of buildings, and all wood work exposed to fire.

The mine from which this article is taken is near Raleigh N. C. It has been examined by many of the most scientific men in this country, who all concur in pronouncing it of the best quality. In the fourth vol. of the American Journal of science, Professor Silliman speaks of it in the following manner. "The Plumbago from North Carolina is of a very fine quality and appears well adapted for pot & crayons." Professor Dewy speaks of it "as the finest he ever saw." Professor Olmstead, now of Yale College in his geological report of the State of North Carolina, Page 5 says.—"Not long since I received a letter from a gentleman in Vermont who contemplated setting up the manufacture of Black Lead Pots or Crucibles, requesting some particulars respecting this Plumbago, having been informed on the highest authority, that it was the best that could be procured within the United States."

It is a very fine article and superior for Pencils also for Crucibles, Pots etc., when the composition of silicious minerals is properly made to suit it, and may be had in any reasonable quantities of the subscriber on liberal terms at Raleigh North Carolina or at James Hol-dene 55 West St. New York. Sep., 7th 1849. Richard Smith,



# FOWLER M. RAY'S METALLIC INDIA RUBBER CAR SPRINGS.

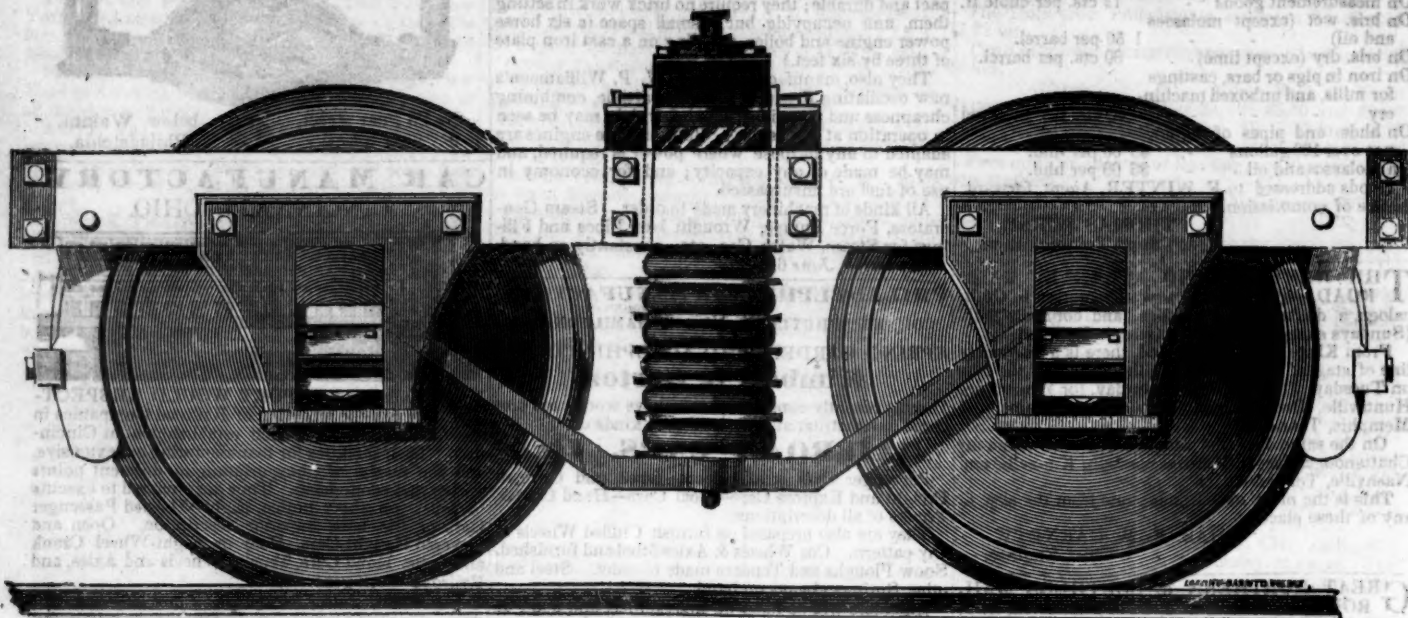


Fig. 1.

Fig. 2.

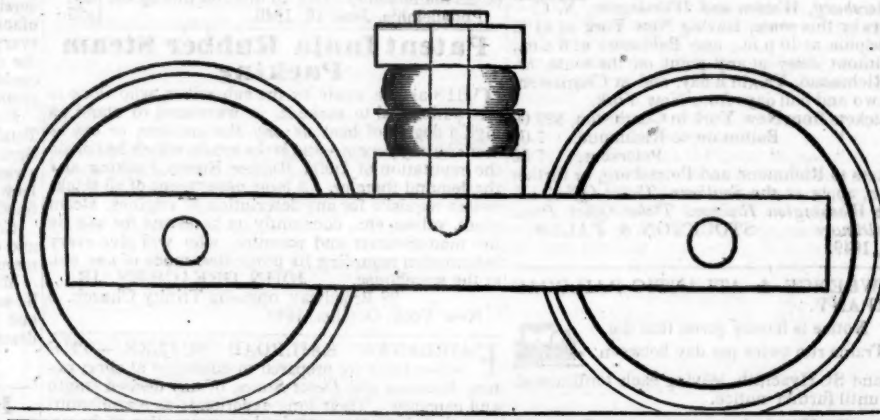
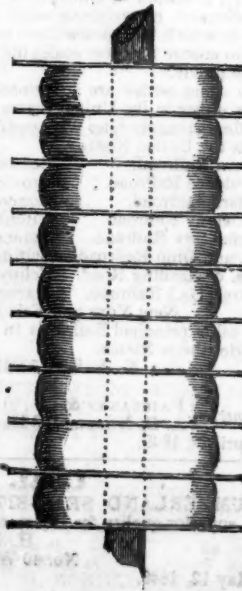


Fig. 3.



So much has been published for the purpose of misleading the public in regard to the inventorship of the India-rubber Railroad Spring, patented in the United States by Mr. W. C. Fuller, that the New England Car Company, proprietors of this invention, have deemed it proper, for the information of Railroad Companies, Car Builders and the public generally, to lay before them the facts upon which they found their claim to this invention, and to a Patent therefor.

Cut No. 1, Represents a cross section of the first model made by Mr. Tucker, under the direction of Mr. Ray, in the summer of 1844, and to which Mr. Tucker, Mr. Bradley and Mr. Bannester testify as being the model marked "B."

Cut No. 2, Represents the model made in 1845, to which Mr. Osgood Bradley and Gen. Thos. W. Harvey have testified.

Cut No. 3, Represents a rough sketch made by Mr. Ray in 1844, which he gave to a man about departing for England to take out some patents, who promised to write to Ray after his arrival in that country—which promise he has probably forgotten.

Mr. W. C. Fuller, of England, patented the above Spring in that country on the 23d October, 1845. He filed his enrollment April 23d, 1846, and on the 22d October, 1846, he took out a patent in the United States under the title, "For Improvement in Railway Carriages," when the improvement consisted in the spring, and not in the carriage.

The reader will perceive by the annexed testimony, that the India-rubber Railroad Car Spring was invented by Mr. Ray about two years previous to the date of Mr. Fuller's enrollment.

The Depositions are omitted for want of room, but will be published in full in the course of a few weeks.

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